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PART II

FEDERAL ENERGY ADMINISTRATION

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ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT

Intent To Issue Prohibition Orders to Certain Installations

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The Federal Energy Administration (FEA) hereby gives notice of its intention to issue Prohibition Orders, pursuant to the authorities granted it by Section 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974, as amended (ESECA), and Title 10, Code of Federal Regulations (10 CFR), Parts 303 and 305 to the following installations:

Docket No.	Owner	Installation	Unit No.	Location
OCU-0400	Chesapeake Corp	West Point Mill	8	West Point, Va.
OCU-0989	Continental Forest Industries, a member of the Continental Group, Inc.	Hopewell Mill	3	Hopewell, Va.
OCU-1512	E. I. Dupont de Nemours & Co	Seaford Plant	3	Seaford, Del.
OCU-1678	Allied Chemical	Hopewell Chemical Plant	12	Hopewell, Va.
OCU-1716	Union Carbide Corp	Institute Plant	12	Institute, W. Va.
OCU-2776	Scott Paper Co	Chester Plant	9	Chester, Pa.
OCU-2839	FMC Corp	Fredericksburg Plant	58	Fredericksburg, Va.
			59	
			60	
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OCU-2840	Avtex Fibers, Inc	Front Royal Plant	1	Front Royal, Va.
			2	
			3	

FEA hereby also gives notice of the opportunity for oral and written presentation of data, views, and arguments by interested persons regarding these proposed Prohibition Orders.

The proposed orders would prohibit the above-named installations from burning natural gas or petroleum products as their primary energy source.

Prior to issuance of a Prohibition Order to an installation, Section 2(a) of ESECA and 10 CFR 303.36(b) and 305.4(b) require that FEA find that the installation had the capabiliy and necessary plant equipment to burn coal as of June 22, 1974. A Prohibition Order may not be issued unless FEA can find that the prohibition of the utilization of natural gas or petroleum products as a primary energy source is practicable and consistent with the purposes of ESECA and that coal and coal transportation facilities will be available during the period the Prohibition Order will be in effect. FEA's proposed findings, as well as its proposed conclusions and rationale with respect to these findings, for each installation are set out in the Appendix to this notice. These findings, conclusions and rationale may be amended as a result of comments received by FEA pursuant to this notice and other information available to FEA. The findings, conclusions and rationale will be included, with any amendments, for each Prohibition Order that is issued.

Upon completion of the proceedings described in this notice, FEA may determine to issue Prohibition Orders to some or all of the above-named installations. These Prohibition Orders will not become effective, however, until (1) either (a) the Administrator of the Environmental Protection Agency (EPA) notifies the FEA, in accordance with Section 119(d)(1)(B) of the Clean Air Act, that the installation is able to burn coal and to comply with all applicable air pollution control requirements without a compliance date extension under Section 119(c) of such Act, or (b) if such notification is not given by EPA, the date that the Administrator of EPA certifies, pursuant to Section 119(d)(1)(B) of the Clean Air Act, is the earliest date that the installation will be able to comply with all applicable requirements of Section 119 of that Act, and (2) FEA has considered the environmental impact of making the order effective, pursuant to 10 CFR 208.3(a)(4) and 305.9, and has served the affected installation with a Notice of Effectiveness, as provided in 10 CFR 303.10(b), 303.37(b) and 305.7. The date the Prohibition Order will be effective will be stated in the Notice of Effectiveness.

10 CFR 305.9 requires that, prior to issuance of a Notice of Effectiveness to an installation, FEA shall perform an analysis of the environmental impact of the issuance of such Notice of Effectiveness, That analysis shall result in either (1) issuance of a declaration that the Prohibition Order will not, if made effective by issuance of a Notice of Effectiveness, be likely to have a significant impact on the quality of the human environment, or (2) the preparation by FEA of an environmental impact statement covering significant site-specific impacts that are likely to result from the Prohibition Order and that have not been adequately addressed in the Final Programmatic Environmental Impact Statement or in other official documents made publicly available. If FEA prepares an environmental impact statement covering significant site-specific impacts resulting from making a Prohibition Order effective, the statement shall be prepared and published for comment in accordance with Section 102(2)(C) of the National Environmental Policy Act of 1969 prior to issuance of a Notice of Effectiveness. Interested persons may request a public hearing pursuant to 10 CFR 303.173 to comment on the contents of a draft environmental impact statement. With respect to comments regarding any impact on air quality that might result from a proposed Prohibition Order, however, it should be recognized that ESECA has assigned to EPA the primary responsibility for analyzing the effect of any such order on the Nation's air quality and for determining the applicable air pollution control requirements that apply to the installation that has been issued and order. It is expected that, in almost every case, an installation to which a Prohibition Order is issued will be eligible to apply to EPA for a compliance date extension. In connection with that application, EPA must also provide an opportunity for written comment and oral presentation of data, views, and arguments by interested persons. Enclosed with the Notice of Effectiveness may be a compliance reporting schedule to insure that the installation will be able to comply with the prohibition of the burning of natural gas or petroleum products as a primary energy source on the effective date specified in the Notice of Effectiveness.

Public comment on the proposal to issue Prohibition Orders to the installations listed above is invited in the form of written and oral presentation of data, views, and arguments. Comments should relate to individual docket numbers and should make clear to which docket number the individual comment is addressed.

Comments should address (1) the adequacy and validity of each of the proposed findings and the conclusions and rationale in support of these findings, (2) the environmental impact making effective a Prohibition Order, including any site-specific environmental impacts, and (3) any other aspects or impacts of the proposed Prohibition Order believed to be relevant.

Pursuant to 10 CFR 303.173(a) and (d) and 305.5, FEA hereby announces that a public hearing to receive oral presentation of date, views, and arguments of interested persons will be held beginning at at 9:00 a.m. on June 1, 2 and 3, 1977, at the Federal Building, Conference Room 11B, 1421 Cherry Street, Philadelphia, Pennsylvania 19102. Any person who has an interest in the subject of the hearing or who is a representative of a group or class of persons which has an interest in the subject of the hearing may make a written request, or a verbal request if confirmed in writing, for an opportunity to make an oral presentation. That request should be directed to Ed Gray, FEA Region III, Room 1001, 1421 Cherry Street, Philadelphia, Pennsylvania 19102, (215) 597-3607. The request should be received before 4:30 p.m., Thursday, May 26, 1977. The request should describe the person's interest in the issue(s) involved; if appropirate, it should state why the person is an appropriate representative of the group or class of persons which has such an interest; it should give concise summary of the proposed oral presentation and a phone number where the person may be contacted through May 31, 1977. Speakers should submit ten (10) copies of their oral presentation if possible, unless such presentation is less than five (5) pages, in which case only one copy is required, to Ed Gray, Federal Energy Administration, Room 1001 1421 Cherry Street, Philadelphia, Pennsylvania

19102, before 4:30 p.m., Monday, May 31, 1977. Speakers will be contacted by an FEA representative before 4:30 p.m., Friday, May 27, 1977, to confirm receipt of the written request.

Detailed technical data, views, and arguments should be contained in a written submission in support of the oral presentation. The oral presentation itself should be a summary of those written comments.

While FEA will endeavor to provide adequate opportunity to all who desire to speak, FEA reserves the right to limit the number of persons to be heard at the hearing, to schedule their respective presentations and to establish the procedures governing the conduct of the hearing. The length of time allocated to each presentation may be limited on the basis of the number of persons requesting to be heard. The FEA will prepare an agenda that shall provide, to the extent possible, for the presentation of all relevant data, views, and arguments.

An FEA official will be designed to preside at the hearing which will not be a judicial or evidentiary hearing. During oral presentations only those conducting the hearing may ask questions. There will be no cross-examination. At the conclusion of all initial oral presentations, each person who has made an oral statement will be given the opportunity, if he or she so desires, to make a rebuttal statement. The rebuttal statements will be given in the order in which the initial statements were made and will be subject to time limitations.

Any interested person may submit written questions to the presiding officer to be asked of any person making an oral presentation. The presiding officer will determine whether to ask the question, having first determined whether the question is relevant, and whether adequate time may be afforded for an answer.

Any further procedural rules needed for the proper conduct of the hearing will be announced by the presiding officer.

A transcript of the hearing will be made and it, together with any written comments submitted in the course of the hearing, will be retained by the FEA and made available for inspection and copying at the Freedom of Information Reading Room, Room 2107, Federal Building, 12th and Pennsylvania Avenue, NW., Washington, D.C. 20461, and the FEA Regional Office, Room 1001, 1421 Cherry Street, Philadelphia, Pennsylvania 19102, between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday. Anyone may purchase a copy of the transcript from the reporter.

Interested persons are invited to submit written comments consisting of data, views, and arguments with respect to these proposed Prohibition Orders to Executive Communications, Box MK, Federal Energy Administration, Federal Building, Room 3317, 12th and Pennsylvania Avenue, NW., Washington, D.C. 20461.

Comments and other documents submitted to FEA Executive Communications should be identified on the outside of the envelope in which they are transmitted and on the document itself with the designation "Proposed Prohibition Order for the _____ Installation." Fifteen copies should be submitted.

All written comments received by 4:30 p.m., Tuesday, June 14, 1977, all oral presentations, and all other relevant information submitted to or available to FEA will be considered by FEA prior to issuance of a Prohibition Order.

Any information or date considered to be confidential by the person furnishing it must be so identified and submitted in writing, one copy only. The FEA reserves the right to determine the confidential status of the information or data and to treat it in accordance with that determination.

Copies of the regulations implementing Section 2 (a) and (b) of ESECA (10 CFR Parts 303 and 305) are available from the following FEA Regional Offices:

REGION, ADDRESS, AND PHONE

I. Robert Mitchell, Regional Administrator, 1500 Causeway Street, Room 700, Boston, Massachusetts 02113—617-223-3701.

II. Alfred Kleinfeld, Regional Administrator, 26 Federal Plaza, Room 3206, New York, New York 10007—212-264-1021.

III. J. A. LaSala, Regional Administrator, 1421 Cherry Street, Room 1001, Philadelphia, Pennsylvania 19102—215-597-3390.

IV. Donald Allen, Regional Administrator, 1655 Peachtree Street, N.E.—8th Floor, Atlanta, Georgia 30309—404-526-2837.

V. N. Allen Anderson, Regional Administrator, Federal Office Building, 175 West Jackson Blvd., Room A-333, Chicago, Illinois 60604—312-353-0540.

VI. Delbert Fowler, Regional Administrator, Post Office Box 35228, 2626 West Mockingbird Lane, Dallas, Texas 75235—214-749-7345.

VII. Neil Adams, Regional Administrator, 1150 Grand Avenue, Kansas City, Missouri 64106—816-374-2061.

VIII. Dudley Faver, Regional Administrator, Post Office Box 26247, Belmar Branch, 1075 South Yukon Street, Lakewood, Colorado 80226—303-234-2420.

IX. William Arntz, Regional Administrator, 111 Pine Street, San Francisco, California 94111—415-556-7216.

X. Jack B. Robertson, Regional Administrator, 1992 Federal Building, 915 Second Avenue, Seattle, Washington 98174—206-442-7280.

MFBI PROHIBITION ORDER CANDIDATE IDENTIFICATION AND SELECTION METHODOLOGY

FEA has engaged in a two year, two part, process in which it first identified, after extensive information gathering, the potential universe of major fuel burning installations (MFBI's) in order to determine which MFBI's might be subject to Prohibition Orders. FEA then performed a detailed analysis of individual potential order recipients to determine whether facts would warrant publication of a Notice of Intention (NOI) to Issue a Prohibition Order to any of the potential order recipients.

I. Determination of candidate universe

On March 20, 1975, by Notice in the FEDERAL REGISTER (40 FR 12706), FEA required MFBI's with design firing rates in excess of 100 million BTU's per hour to provide basic identifying information. (FEA in its regulations published on May 9, 1975, (40 FR 20463) adopted the 100 million BTU's per hour design firing rate as the minimum size MFBI that would be eligible for a Prohibition Order).

On April 18, 1975, FEA published notice in the FEDERAL REGISTER (40 FR 17328) that it would mail to all then known MFBI's a questionnaire, entitled "Major Fuel Burning Installation Coal Conversion Report" (Form FEA C-602-S-0), designed to provide FEA with additional information needed to help determine whether the MFBI's would be candidates for Prohibition Orders. Questionnaires were mailed to those respondents to the March 20, 1975, FEDERAL REGISTER notice and to other MFBI's identified through data provided by FEA regional personnel, the Environmental Protection Agency, other Federal agencies, and through contact with trade associations. A total of 822 parent companies responded to the survey, identifying 3,482 installations and 6,289 individual units.

The first survey provided FEA with historical information on quantity and quality of fuel use and preliminary pollution control data relative to the facilities in question.

Compilation and evaluation of the information received from the survey led to development of a supplemental questionnaire (Form FEA C-602-S-1) to elicit data on the financial situation of owners of MFBI's, including information designed to ascertain what the effects of a Prohibition Order would be on an individual company basis. This questionnaire was designed to provide a basis for subsequent analysis of the MFBI in terms of financial capability, additional capital investment costs resulting from a Prohibition Order, operating cost differentials and coal and coal transportation availability. This supplemental questionnaire was sent in June 1976 to various owners of MFBI's to obtain information on 161 sites and 281 individual units.

Most of the supplemental questionnaires (involving 138 sites and 246 units) were sent to owners of MFBI's identified as capable of burning coal in the first questionnaire and which, in 1974, burned at least 150,000 barrels of oil or 921,000,000 cubic feet of natural gas or a BTU equivalent combination. These MFBI's were chosen because of their potential for large fuel savings and the potential low conversion costs to fuel saving ratio.

The other supplemental questionnaires were sent to MFBI's which had indicated an intention to discontinue coal use (23 sites at which there were 35 units).

In September 1976, after responses to the supplemental questionnaires had been received, FEA consulted with the Environmental Protection Agency (EPA) to obtain EPA's best estimate as to the means by which these MFBI's could burn coal and comply with all applicable air pollution control requirements. EPA indicated whether particular MFBI's would require upgrading, or

installation of electrostatic precipitators, installation of flue-gas desulfurization devices, or whether the MFBI could burn coal that would conform to air pollution control requirements without pollution control equipment.

II. *Site specific analysis.*

Once FEA had gathered the supplemental data relating to the 161 sites, it then conducted a technical analysis for each respondent to the supplemental questionnaire.

FEA prepared a technical summary based on the information provided to enable the Agency to analyze each respondent's potential amenability to receipt of an NOI. The technical summary consisted of the following data:

a. Expected remaining useful life (respondent's and FEA's estimates);

b. Unit capacity;

c. Fuel consumption for 1975;

d. The last year coal was burned at the installation;

e. Costs of converting to coal, including pollution control equipment costs, if any (respondent's and FEA's estimates);

f. Type of pollution control equipment, if any, required (respondent's and EPA's estimates); and

g. Other relevant factors, such as percent sulfur content in coal that would be required to insure compliance with environmental standards.

FEA eliminated or deferred from further consideration those MFBI's for which the following criteria were applicable:

a. Remaining useful life of the MFBI on January 1, 1978 would be less than one year (based on an expected useful life of 40 years);

b. The utilization factor of the MFBI was less than 20 percent;

c. Space required for coal use at the installation was inadequate or unvailable;

d. Since filing the original questionnaire, the MFBI had been converted to coal as its primary energy source or the owner has certified that the MFBI will be so converted in the near future;

e. The MFBI used (in the latest year for which fuel use figures are available) significantly less than 2×10^{12} Btu's of oil or natural gas.

Items a or b above, would prevent FEA from finding that burning coal by the MFBI would be practicable. FEA assumed a forty-year useful life as a reasonable estimate based on general industrial averages. FEA has decided not to analyze MFBI's that have already converted to coal, since the basic purposes of ESECA have already been accomplished by such conversions and FEA has concluded that its resources would be better allocated by concentrating on those MFBI's which are not now burning coal.

Certain MFBI's were eliminated from further analysis upon FEA's determination that one or more of the factors which FEA must consider pursuant to § 305.4(c) of its regulations would have resulted in disqualification of a particular MFBI. Such eliminations were based on factors such as process fuel uses peculiar to the MFBI's, inadequate land or space for coal related facilities, unique or unusual environmental constraints, and other similar disqualifying considerations.

If in FEA's judgment, analysis of the summary information raised issues that required further investigation, FEA conducted visits to the specific sites. Site visits were employed in circumstances in which large discrepancies between FEA's and the MFBI's cost estimates were observed, unusual technical problems were presented by the MFBI with respect to coal use, and when other disparities occurred between the information submitted by the MFBI and that developed independently by FEA. Information developed during the site visits served to either eliminate an MFBI from further consideration, through the aforementioned criteria, or served to demonstrate that FEA should continue its analysis.

For each MFBI not eliminated through any of the above criteria, FEA has calculated the net operating cost differential between using coal as the MFBI's primary energy source and using either natural gas or petroleum products.

A. *Calculation of net operating cost differential.* The net operating cost differential consists of the sum of (1) annualized increased capital investment costs required for conversion to coal, (2) differences in operating and maintenance costs (including the fuel cost differential), and (3) the potential tax consequences attendant to conversion. Initially, FEA performs two calculations in determining the net operating cost differential, one using cost figures supplied by the MFBI and the other using FEA's own estimates. When the MFBI's figures are within a reasonable range of FEA's estimates, FEA generally accepts the MFBI's figures. Gross discrepancies are examined in more detail by FEA to determine the reasonableness of the differing estimates and to reconcile differences.

The elements of the three parts of the net operating cost differential are explained below:

1. *Capital investment costs.* The primary element in this part is the cost of equipment acquisition and refurbishment required for conversion to coal, including refurbishment or acquisition of pollution control equipment. In determining the estimated annual increase fixed costs to the owner resulting from such capital investment, FEA calculates the annual depreciation of equipment costs over the expected remaining useful service life of the MFBI (including consideration of the investment tax credit) and adds the estimated annual cost of capital.

Annual depreciation is calculated as follows:

a. Determine cost of new equipment (including pollution control equipment) minus investment tax credit of 10 percent.

b. Divide the figure in a, above, by the expected remaining useful life of the MFBI after conversion is completed. FEA presumes that the MFBI's determination of remaining useful life is correct if it results in a total useful life of at least 40 years. Otherwise, FEA will conduct a more detailed examination of the MFBI.

Calculation of the approximate annual cost of capital is as follows:

a. New and refurbished equipment costs minus the investment tax credit, plus.

b. Twice the cost of land acquisitions required for conversions to coal burning.

c. The total of 1) and 2) is divided by 2 and then multiplied by a 10 percent inverest rate.

2. *Operating and maintenance costs.* The primary factor considered in this calculation is the annual fuel cost differential which represents the difference between operating the MFBI with coal as its primary energy source in lieu of petroleum products or natural gas. (If the current supply of natural gas to the MFBI is curtailed, then the calculation of the fuel cost differential does not include natural gas as part of the MFBI's current fuel use to the extent of that curtailment. In such cases the NOCD was calculated on the basis of actual fuel usage). FEA has generally accepted the coal price reported by the MFBI's. If FEA considered the stated price to be unreasonable, it further examined coal prices based upon an analysis of delivered prices of coal in the area of the MFBI under consideration and an analysis of likely coal sources. Projected coal use after conversion was calcuated by converting latest annual fuel use data to its BTU equivalent for coal.

Determination of the differential relating to labor costs and the differential relating to other operating and maintenance costs was based upon estimates supplied by MFBI's.

3. *Potential tax effects.* Federal and state tax rates have been applied to the net operating cost differential to determine maximum potential tax effects resulting from a Prohibition Order.

If the NOCD for an MFBI was positive, i.e., projects an increase in annual costs of operations, then a calculation of the cost per barrel of oil saved was performed by dividing the NODC by the number of barrels of oil actually used on an annual basis (or, if the MFBI was a natural gas user, the number of barrels of oil which would be required to replace the gas use on an equivalent Btu basis). This figure (cost per barrel of oil saved) was then considered in terms of the number of barrels of oil and/or MCF of natural gas that would be saved by issuance of a Prohibition Order, the effect of the NOCD on the MFBI owner's operating expenses, as well as various environmental and other factors in reaching the final determination as to which candidates should receive an NOI.

It is to be noted that much of the information used by FEA to make its practicability findings is arguably confidential under 18 U.S.C. 1905. Therefore, such information has not appeared in the Appendix to the NOI. The calculations have been explained in each case and the data are available to the representatives of the owner of the MFBI.

Any questions regarding this Notice should be directed to the FEA National Office as follows: Federal Energy Administration, Code OCU Prohibition Order: _____ Installation), Washington, D.C. 20461 (202) 566-7941.

(Energy Supply and Environmental Coordination Act of 1974 (15 U.S.C. 791 et seq.), as amended by Pub. L. 94-163; Federal Energy Administration Act of 1974 (15 U.S.C. 761 et seq.), as amended by Pub. L. 94-385; E.O. 11790 (39 FR 23185).)

Issued in Washington, D.C. May 9 1977.

ERIC J. FYGI,
Acting General Counsel,
Federal Energy Administration.

APPENDIX

PROPOSED FINDINGS AND RATIONALE FOR NOTICE OF INTENTION TO ISSUE A PROHIBITION ORDER

ESECA and the FEA regulations require FEA to make certain findings before issuing a Prohibition Order to a major fuel burning installation (MFBI). FEA's proposed findings are set out below with respect to the MFBI named below. Supporting rationale and conclusions are also set forth.

Docket No.	Owner	Installation	Unit No.	Location
OCU-0400	Chesapeake Corp.	West Point Mill	8	West Point, Va.

These findings, which are now proposed by FEA, are based on the information that has been provided to and developed by FEA prior to the issuance of this Notice of Intention (NOI) to issue a Prohibition Order.

Chesapeake Corporation shall be referred to as the "owner" and as "Chesapeake". West Point Mill Unit 8 shall be referred to as the "MFBI" and as "West Point 8".

I. *Capability and necessary plant equipment to burn coal.*

FEA proposes to find that on June 22, 1974, West Point 8 had the capability and necessary plant equipment to burn coal. This proposed finding is based on the facts and interpretations stated below:

A. Chesapeake, in a Major Fuel Burning Installation Coal Conversion Report, Section II, Questions 6, and 12-14, (Form FEA C-602-S-0), filed on May 12, 1975, indicated that the MFBI had in place on June 22, 1974, a boiler that was capable of burning coal. The boiler had been designed and constructed or modified to burn coal as its primary energy source, notwithstanding the fact that on June 22, 1974, the MFBI may not have been burning coal as its primary energy source.

B. Based on information Chesapeake filed with FEA dated July 21, 1976, and other information available to FEA, the following plant equipment and facilities at West Point 8 would have to be acquired or refurbished in order for the MFBI to burn coal as its primary energy source:

1. Unloaders.
2. Conveyors.
3. Crushers.
4. Pulverizers.
5. Feeders.
6. Combustors.
7. Soot blowers.
8. Instrumentation and controls.
9. Ash handling and ponding equipment.

C. FEA proposes to find that on June 22, 1974, West Point 8 had all other significant plant equipment and facilities associated with the burning of coal.

D. Within the meaning of ESECA and the regulations promulgated pursuant thereto, the equipment and facilities listed in paragraph B, above, do not individually or in combination constitute a lack of capability and necessary plant equipment to burn coal as of June 22, 1974.

II. *The burning of coal in lieu of natural gas or petroleum products is practicable and consistent with the purposes of ESECA.*

FEA proposes to find that the burning of coal in lieu of petroleum products or natural gas at West Point 8 is practicable and consistent with the purposes of ESECA. This proposed finding is based upon an analysis by FEA of the fuel consumption of this boiler for the period 1973-1975, the remaining useful service life of the boiler after conversion, the net operating cost differential that would result from compliance with a Prohibition Order, as well as the facts and interpretations referenced below:

A. *The burning of coal is practicable.*—1. *Costs associated with burning coal.*—a. *Capital investment costs.* The total estimated initial capital investment costs, including financing costs, that would result from the acquisition and refurbishment of equipment and facilities associated with the burning of coal at West Point 8 have been determined.

This determination was based on existing FEA information and analysis as well as information filed with FEA by the owner. Approximate costs to comply with applicable environmental protection requirements have also been considered, including the cost of compliance with the air pollution control requirements of the Clean Air Act.

b. *Annual operating and maintenance costs.* The expected increase in operating and maintenance costs, exclusive of fuel costs, that would result from the burning of coal has been calculated based on information supplied by the owner or otherwise acquired by FEA.

c. *Fuel costs.* Based on an analysis of annual fuel consumption and fuel cost information supplied by the owner and/or, in appropriate circumstances, upon FEA's fuel cost estimates, FEA has determined that the burning of coal in lieu of natural gas or petroleum products at West Point 8 will result in a decrease in annual fuel costs.

d. *Net operating cost differential.* Based on the factors stated in paragraphs A.1a.-c., above, as well as the expected remaining useful life of the boiler after conversion, FEA has determined that the net annual operating cost differential (which represents the difference between operating the boiler with coal and alternate fuel(s) as its primary energy source), resulting from the conversion of West Point 8 will represent an annual savings.

2. *Reasonableness of costs of conversion.* The foregoing analysis of the costs of conversion provided the basis for deciding whether the conversion of West Point 8 is reasonable.

As a result of conversion, Chesapeake will incur additional capital investment costs, including financing costs, and additional annual operating and maintenance costs, exclusive of fuel costs, but will experience an annual savings in its total fuel costs for the expected remaining useful service life of the boiler after conversion.

Since all increased costs of conversion will be offset by the decrease in fuel costs, a net decrease in the annual cost of operation of the boiler should result.

The use of coal at West Point 8 will result in a substantial annual savings of barrels of oil that otherwise would be used as boiler fuel.

FEA proposes to find that, since the increase in capital investment costs and operating and maintenance costs at West Point 8 are totally offset by the current fuel cost differential between oil and coal burning at West Point 8, and potential future increases in the fuel cost differential in favor of coal, the additional costs associated with burning coal are reasonable.

3. *Financial capability of the owner*—a. *Recovery of capital investment.* FEA proposes to find that compliance with a Prohibition Order by West Point 8 would be economically feasible. FEA's analysis took into consideration the financial capability of the owner and is based upon the owner's financial position as reported in the Dun and Bradstreet Reference Book (March 1977). Where necessary, FEA performed an independent analysis of the owner's financial capability, considering such factors as the owner's current financial statement and the additional capital investment required for the owner to comply with this NOI and all other NOI's which are currently under consideration, as well as additional capital investment costs related to all other Notices of Intention, to date, if any, to issue Prohibition or Construction Order, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2 (a) and (c) of ESECA to MFBI's owned by Chesapeake. FEA related these additional capital investment costs to the total capitalization of Chesapeake and the remaining useful life after conversion of West Point 8.

FEA does not consider the effect of the added capital investment costs to represent an unreasonable burden given the financial capabilities of Chesapeake to assume such costs.

b. *Total annual costs associated with conversion.* The total estimated annual increase in costs (amortized increased capital investment costs and other costs, exclusive of fuel costs) associated with the burning of coal as opposed to oil attributable to compliance with this NOI and all other NOI's which are currently under consideration has been determined. FEA also took into consideration total annual costs resulting from compliance with all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2 (a) and (c) of ESECA to Chesapeake MFBI's.

However, due to the potential offsetting value of fuel cost savings attributable to compliance with this NOI and all other NOI's currently under consideration, Chesapeake's total annual costs after conversion should decrease.

B. *Consistency with the purposes of ESECA.*—Because the issuance of a Prohibition Order to West Point 8 will discourage the use of natural gas or petroleum products and encourage the increased use of coal, FEA proposes to conclude that this action would be consistent with the purpose of ESECA to provide a means to assist in meeting the essential needs of the United States for fuels.

On the basis of the environmental analysis which FEA is required to conduct prior to issuance of a Notice of Effectiveness of a Prohibition Order, as well as the necessity for this MFBI to comply with the Clean Air Act and other applicable environmental

protection requirements, FEA proposes to conclude that a Prohibition Order to West Point 8 would be consistent with the purpose of ESECA to provide for a means to assist in meeting the essential needs of the United States for fuels in a manner which is consistent, to the fullest extent practicable, with existing national commitments to protect and improve the environment.

III. *Coal and coal transportation facilities will be available to this MFBI during the period until December 31, 1984.*

A. *Coal availability.*—1. *National coal reserves.* United States coal reserves are more than sufficient to supply national needs for the foreseeable future. U.S. Department of the Interior, Bureau of Mines (BOM) data show a demonstrated coal reserve base of over 400 billion tons, over half of which is currently technically and economically recoverable (Demonstrated Coal Reserve Base of the United States, by Sulfur Category, on January 1, 1974, Bureau of Mines (May 1975) [hereafter "BOM Survey"]). Within these recoverable reserves approximately 200 billion tons contain 1 percent or less sulfur by weight. To determine when certain quantities of these reserves are expected to be available, FEA has examined several studies referenced herein, which together provide the best current evidence as to coal availability for the period ending December 31, 1984.

2. *National coal production and demand.* The comparison, stated below, of estimated national coal production, national coal demand, and the total tonnage of uncommitted planned national coal production (derived from responses to a survey of coal producing companies) shows that there should be sufficient production of coal to meet the total national demand through 1980. Beyond 1980, plans for new production are not yet fully developed because few coal producers have firm expansion plans that extend that far into the future; however, the projected total planned national coal production for 1985 already meets 99 percent of the total U.S. demand expected in 1985. With time, more potential mine developments will become firm plans, thus increasing the planned production.

a. *National coal production.* It is conservatively estimated that it will be practicable to produce coal nationally in at least the following quantities:

Year:	*Production potential (million tons)*
1977	732.3
1978	791.6
1979	851.4
1980	911.7
1981	960.0
1982	994.3
1983	1,017.4
1984	1,028.7
1985	1,029.6

The figures shown above are derived from FEA's Coal Mine Expansion Study (May 1976). This study demonstrates that most coal producers did not have firm or accurate plans for new capacity additions beyond 1980. The 1985 projection, therefore, tends to underestimate actual production potential.

An FEA study, Coal Availability Report, April 1977, (hereafter "Availability Report"), indicates current plans for nationwide production of uncommitted coal as follows:

Year:	*Production (million tons)*
1978	124.3
1979	243.1
1980	293.3
1981	350.0
1982	369.9
1983	396.2
1984	475.5
1985	544.9

b. *National demand exclusive of ESECA prohibition order demand.* The estimated national demand, excluding any increased demand resulting from FEA action under the authority of Section 2(a) of ESECA, is as follows (FEA 1976 National Energy Outlook):

Year:	*Demand (million tons)*
1978	730
1979	764
1980	799
1981	842
1982	887
1983	935
1984	985
1985	1,040

c. *National ESECA prohibition order demand.* The estimated potential demand for coal resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA is no more than the following ("Availability Report").

Year:	*Demand (million tons)*
1978	11.0
1979	22.4
1980	32.5
1981	35.8
1982	57.4
1983	59.8
1984	59.8

3. *Characteristic coal production and demand.* FEA's "Availability Report" identifies coal of specific quality characteristics available for use at this MFBI. The survey is based on data from 31 mining companies that supplied useful information on 96 mining units. Responses from these companies identified planned production of coal which is not now committed to a specific buyer. For those companies which did not respond to the survey, FEA estimated their uncommitted planned production based on their 1974 production.

a. *Characteristic coal requirements for this MFBI.* FEA's "Availability Report" has determined that a boiler of the type used at West Point 8 will be able to burn coal of the following characteristics and comply with all applicable air pollution control requirements.

Btu's/lb.	[1] 10,000
Moisture (percent)	[2] 15
Ash (percent)	[2] 20
Volatile (percent)	[1] 15
Ash softening temp (° F)	[1] 2,200
Sulfur (approximately) (percent)	[2] 1.5

[1] Minimum.
[2] Maximum.

b. *Characteristic coal demand from this MFBI.* The potential demand for coal, of the type described above, which would result from this NOI is estimated to be as follows:

Year:	*Demand (thousand tons)*
1980 and thereafter	120

c. *National planned production, characteristic coal.* FEA's "Availability Report" has determined that coal of the type described in paragraph A.3.a., above, is uncommitted to a specific buyer and will be potentially available to this MFBI in a nationwide market as follows:

Year:	*Production (thousand tons)*
1978	67,937
1979	127,138
1980	158,932
1981	189,318
1982	200,259
1983	214,838
1984	253,700

d. *National ESECA prohibition order demand for coal, regardless of characteristics.* The national planned production of characteristic coal, as stated in paragraph A.3.c., above, exceeds potential demand for coal regardless of characteristic expected from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. National ESECA Prohibition Order demand as previously stated in paragraph A.2.c., above, is no more than the following ("Availability Report"):

Year:	*Demand (thousand tons)*
1978	11,032
1979	22,434
1980	32,483
1981	35,755
1982	57,362
1983	59,815
1984	59,815

e. *Regional planned production, characteristic coal.* Coal with the characteristics described in paragraph A.3.a., above, is uncommitted and will be potentially available to this MFBI (in a probable regional supply/demand relationship related to the location of the MFBI) from BOM Districts 1 through 6 as follows ("Availability Report"):

Year:	*Production (thousand tons)*
1978	5,771
1979	11,338
1980	14,018
1981	16,565
1982	17,425
1983	18,478
1984	22,504

f. *Regional ESECA prohibition order demand for coal, regardless of characteristic.* The expected regional production of characteristic coal, as stated in paragraph A.3.e., above, exceeds the potential demand for coal regardless of characteristic from BOM Districts 1 through 6 expected to result from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. This potential regional demand is estimated in FEA's "Availability Report" to be no more than the following:

Year:	*Demand (thousand tons)*
1978	2,090
1979	4,268
1980	6,504
1981	7,369
1982	17,258
1983	19,298
1984	19,298

g. *Regional ESECA prohibition order demand for coal by sulfur characteristic.* The potential regional demand for coal from BOM Districts 1 through 6 with a 1.41–1.81 percent sulfur content (which includes the 1.5 percent maximum sulfur content described in paragraph A.3.a., above) resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under the authority of Section 2(a) of ESECA is estimated in FEA's "Availability Report" to be no more than the following:

Year:	*Demand (thousand tons) percent sulfur 1.41-1.8*
1978	1,916
1979	3,045
1980	4,465
1981	5,222

Year:	Demand (thousand tons) percent sulfur 1.41-1.8
1982	5,318
1983	5,318
1984	5,318

The regional planned production of coal stated in paragraph A.3.e., above, with the characteristics described in paragraph A.3.a., above, far exceeds this potential ESECA regional demand for coal by sulfur characteristic.

4. *State or local laws.* FEA has found no state or local laws or policies limiting the extraction or utilization of coal that would adversely affect these production figures, and none have been brought to FEA's attention.

5. *Conclusion.* FEA's "Availability Report" has identified nationally and in BOM Districts 1 through 6 uncommitted coal production that meets the requirements of West Point 8 as described in paragraph A.3.a., above. FEA proposes to find that this uncommitted coal exists in amounts sufficient in any year to meet the estimated additional demand for coal, both nationally and from these Districts, resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA.

Coal for this MFBI will probably be bought from producers according to regional supply/demand relationships related to the MFBI's location from BOM Districts 1 through 6. FEA observes, however, that the MFBI could purchase coal in other markets as such production becomes available. (The Feasibility of Considering Expanded Use of Western Coal by Midwestern and Eastern Utilities in the Period 1978 and Beyond, School of Engineering, University of Pennsylvania, November 7, 1975.)

B. *Coal transportation.*—1. *Location of MFBI and coal supply.* Based on an FEA study, Coal Transportation Availability Report, April 1977, (hereafter "Transportation Availability Report"), coal for West Point 8 would probably come from BOM District 2 as the primary supply area and from BOM District 7 as the alternate supply area. While these supply regions are the nearest available sources able to supply complying coal to the plant, complying coal could be transferred by rail from other identified sources within the United States as well. The analysis of transportation availability is based on the most likely route as well as two alternate routes. These routes were chosen to demonstrate transportation availability.

2. *Route of coal shipment.* The primary route for coal delivery for West Point 8 is to originate coal near Rockwood, Pennsylvania in BOM District 2 on the Baltimore and Ohio (Chessie System) which would move it to Alexandria, Virginia. The Richmond, Frederick and Potomac (RF&P) would move it to Richmond, Virginia where the Southern Railway would pick it up for delivery to West Point 8. The total rail distance is about 360 miles.

The alternate route from the primary supply area originates coal in BOM District 2 on Consolidated Railroad Corporation (ConRail). ConRail would move the coal via Harrisburg, Pennsylvania, and Baltimore, Maryland to Washington, D.C. The RF&P would then move the coal to Richmond, Virginia where the Southern Railway would pick it up for delivery to West Point 8. The total rail distance is about 460 miles.

An alternate route from the alternate supply area would originate coal in BOM District 7 in the area of Radford, Virginia on the Norfolk and Western (N&W).

N&W would move the coal to Burkeville, Virginia where the Southern Railway would pick it up for delivery to West Point 8. The total rail distance is about 255 miles.

3. *Originating trunk carrier.* The Chessie System, the originating carrier of coal for West Point 8, has approximately 75,000 hopper cars in service with plans to add 5,000 more in the near future. Using an average number of 20 deliveries per year per 77-ton car, the Chessie may need as many as 126 additional cars to handle the increased demand from West Point 8. This estimated assumes that the railroad would neither have excess originating capacity nor obtain cars from other carriers in the originating vicinity. Chessie's capacity to build new hopper cars in its own shops exceeds 2,500 per year, and it anticipates no significant constraints in adding adequate capacity for all foreseeable demands.

FEA's "Transportation Availability Report" concluded that for all potential Prohibition Order candidates studied, there would be no major constraints in transporting coal. This study examined existing rail transportation capacity, including unloading docks, where applicable, and took into account projections made by all carriers to meet the anticipated demand for all types of transportation facilities assuming all MFBI's studied were to receive order under Section 2(a) of ESECA.

The Chessie indicated that transportation facilities at mine sites within BOM District 2 served by the Chessie are in good conditions and that loading facilities could handle the required coal volumes.

FEA has not found nor has it been informed of any apparent constraints to carrying coal for any alternate or intermediate carriers should they be used.

4. *Designation carrier and MFBI facilities.* The Southern Railway provides freight service to West Point 8. Chesapeake reports that coal was burned at West Point 8 until 1968 but that some modernization of their coal receiving and storage facilities would be desirable. It is expected that these repairs can be accomplished prior to the effective date for coal burning. There are no other obstacles to the delivery of coal to West Point 8.

5. *Conclusion.* Coal transportation facilities will be available for the period a Prohibition Order is expected to be in effect since no major constraints to coal delivery over the primary route to West Point 8 presently exist, and alternate routes are available.

APPENDIX

PROPOSED FINDINGS AND RATIONALE FOR NOTICE OF INTENTION TO ISSUE A PROHIBITION ORDER

ESECA and the FEA regulations require FEA to make certain findings before issuing a Prohibition Order to a major fuel burning installation (MFBI). FEA's proposed findings are set out below with respect to the MFBI's named below. Supporting rationale and conclusions are also set forth.

Docket No.	Owner	Installation	Unit No.	Location
OCU-0089.....	Continental Forest Industries, a member of the Continental Group, Inc.	Hopewell Mill.....	2 3	Hopewell, Va.

These findings, which are now proposed by FEA, are based on the information that has been provided to and developed by FEA prior to the issuance of this Notice of Intention (NOI) to issue a Prohibition Order.

Continental Forest Industries, A Member of The Continental Group, Inc., shall be referred to as the "owner" and as "Continental". Hopewell Mill Units 2 and 3 shall be referred to as the "MFBI's" and as "Hopewell 2 and 3".

I. *Capability and necessary plant equipment to burn coal.*

FEA proposes to find that on June 22, 1974, Hopewell 2 and 3 had the capability and necessary plant equipment to burn coal. This proposed finding is based on the facts and interpretations stated below:

A. Continental, in a Major Fuel Burning Installation Coal Conversion Report, Section II, Questions 6, and 12–14, (Form FEA C–602–S–0) filed on May 20, 1975, indicated that each MFBI had in place on June 22, 1974, a boiler that was capable of burning coal. The boilers had been designed and constructed or modified to burn coal as their primary energy source, notwithstanding the fact that on June 22, 1974, the MFBI's may not have been burning coal as their primary energy source.

B. Based on information Continental filed with FEA dated September 30, 1976, and other information available to FEA, the following plant equipment and facilities at Hopewell 2 and 3 would have to be acquired or refurbished in order for these MFBI's to burn coal as their primary energy source:

1. Unloaders.
2. Conveyors.
3. Crushers.
4. Pulverizers.
5. Feeders.
6. Burners.
7. Ash handling and loading equipment.

C. FEA proposes to find that on June 22, 1974, Hopewell 2 and 3 had all other significant plant equipment and facilities associated with the burning of coal.

D. Within the meaning of ESECA and the regulations promulgated pursuant thereto, the equipment and facilities listed in paragraph B, above, do not individually or in combination constitute a lack of capability and necessary plant equipment to burn coal as of June 22, 1974.

II. *The burning of coal in lieu of natural gas or petroleum products is practicable and consistent with the purposes of ESECA.*

FEA proposes to find that the burning of coal in lieu of petroleum products or natural gas at Hopewell 2 and 3 is practicable and consistent with the purposes of ESECA. This proposed finding is based upon an analysis by FEA of the fuel consumption of these boilers for the period 1973–1975, the remaining useful service life of each boiler after conversion, the net operating cost differential that would result from compliance with a Prohibition Order, as well as the facts and interpretations referenced below:

A. *The burning of coal is practicable.*—1. *Costs associated with burning coal.*—a. *Capital investment costs.* The total estimated initial capital investment costs, including financing costs, that would result from the acquisition and refurbishment of equipment and facilities associated with the burning of coal at Hopewell 2 and 3 have been determined.

This determination was based on existing FEA information and analysis as well as information filed with FEA by the owner. Approximate costs to comply with applicable environmental protection requirements have also been considered, including the cost of compliance with the air pollution control requirements of the Clean Air Act.

b. *Annual operating and maintenance costs.* The expected increase in operating and maintenance costs, exclusive of fuel costs, that would result from the burning of coal has been calculated based on information supplied by the owner or otherwise acquired by FEA.

c. *Fuel costs.* Based on an analysis of annual fuel consumption and fuel cost information supplied by the owner, and/or, in appropriate circumstances, upon FEA's fuel cost estimates, FEA has determined that the burning of coal in lieu of natural gas or petroleum products at Hopewell 2 and 3 will result in a decrease in annual fuel costs.

d. *Net operating cost differential.* Based on the factors stated in paragraphs A.1.a.–c., above, as well as the expected remaining useful life of the boilers after conversion, FEA has determined that the net annual operating cost differential (which represents the difference between operating the boilers with coal and alternate fuel(s) as their primary energy source), resulting from the conversion of Hopewell 2 and 3, will represent an annual savings.

2. *Reasonableness of costs of conversion.* The foregoing analysis of the costs of conversion provided the basis for deciding whether the conversion of Hopewell 2 and 3 is reasonable.

As a result of conversion, Continental will incur additional capital investment costs, including financing costs, and additional annual operating and maintenance costs, exclusive of fuel costs, but will experience an annual savings in its total fuel costs for the expected remaining useful service life of the boilers after conversion.

Since all increased costs of conversion will be offset by the decrease in fuel costs, a net decrease in the annual cost of operation of the boilers should result.

The use of coal at Hopewell 2 and 3 will result in a substantial annual savings of barrels of oil savings that otherwise would be used as a boiler fuel.

FEA proposes to find that, since the increase in capital investment costs and operating and maintenance costs at Hopewell 2 and 3 are totally offset by the current fuel cost differential between oil and coal burning at Hopewell 2 and 3 and potential future increases in the fuel cost differential in favor of coal, the additional costs associated with burning coal are reasonable.

3. *Financial capability of the owner.*—a. *Recovery of capital investment.* FEA proposes to find that compliance with a Prohibition Order by Hopewell 2 and 3 would be economically feasible. FEA's analysis took into consideration the financial capability of the owner and is based upon the owner's financial position as reported in the Dun and Bradstreet Reference Book (March 1977). Where necessary, FEA performed an independent analysis of the owner's financial capability, considering such factors as the owner's current financial statement and the additional capital investment required for the owner to comply with this NOI and all other NOI's which are currently under consideration, as well as additional capital investment costs related to all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2(a) and (c) of ESECA to MFBI's owned by Continental. FEA related these additional capital investment costs to the total capitalization of Continental and the remaining useful life after conversion of Hopewell 2 and 3.

FEA does not consider the effect of the added capital investment costs to represent an unreasonable burden given the financial capabilities of Continental to assume such costs.

b. Total annual costs associated with conversion. The total estimated annual increase in costs (amortized increased capital investment costs and other costs, exclusive of fuel costs) associated with the burning of coal as opposed to oil attributable to compliance with this NOI and all other NOI's which are currently under consideration has been determined. FEA also took into consideration total annual costs resulting from compliance with all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2(a) and (c) of ESECA to Continental MFBI's.

However, due to the potential offsetting aggregate value of fuel cost savings attributable to compliance with this NOI and all other NOI's currently under consideration, Continental's total annual costs after conversion should decrease.

B. *Consistency with the purposes of ESECA.*—Because the issuance of a Prohibition Order to Hopewell 2 and 3 will discourage the use of natural gas or petroleum products and encourage the increased use of coal, FEA proposes to conclude that this action would be consistent with the purpose of ESECA to provide a means to assist in meeting the essential needs of the United States for fuels.

On the basis of the environmental analysis which FEA is required to conduct prior to issuance of a Notice of Effectiveness of a Prohibition Order, as well as the necessity for these MFBI's to comply with the Clean Air Act and other applicable environmental protection requirements, FEA proposes to conclude that a Prohibition Order to Hopewell 2 and 3 would be consistent with the purpose of ESECA to provide for a means to assist in meeting the essential needs of the United States for fuels in a manner which is consistent, to the fullest extent practicable, with existing national commitments to protect and improve the environment.

III. *Coal and coal transportation facilities will be available to these MFBI's during the period until December 31, 1984.*

A. *Coal availability.*—1. *National coal reserves.* United States coal reserves are more than sufficient to supply national needs for the foreseeable future. U.S. Department of the Interior, Bureau of Mines (BOM) data show a demonstrated coal reserve base of over 400 billion tons, over half of which is currently technically and economically recoverable (Demonstrated Coal Reserve Base of the United States, by Sulfur Category, on January 1, 1974, Bureau of Mines (May 1975) [hereafter "BOM Survey"]). Within these recoverable reserves approximately 200 billion tons contain 1 percent or less sulfur by weight. To determine when certain quantities of these reserves are expected to be available, FEA has examined several studies referenced herein, which together provide the best current evidence as to coal availability for the period ending December 31, 1984.

2. *National coal production and demand.* The comparison, stated below, of estimated national coal production, national coal demand, and the total tonnage of uncommitted planned national coal production (derived from responses to a survey of coal producing companies) shows that there should be sufficient production of coal to meet the total national demand through 1980. Beyond 1980, plans for new production are not yet fully developed because few coal producers have firm expansion plans that extend that far into the future; however, the projected total planned national coal production for 1985 already meets 99 percent of the total U.S. demand expected in 1985. With time, more potential mine developments will become firm plans, thus increasing the planned production.

a. *National coal production.* It is conservatively estimated that it will be practicable to produce coal nationally in at least the following quantities:

Year:	*Production Potential (million tons)*
1977	732.3
1978	791.6
1979	851.4
1980	911.7
1981	960.0
1982	994.3
1983	1,017.4
1984	1,028.7
1985	1,029.6

The figures shown above are derived from FEA's Coal Mine Expansion Study (May 1976). This study demonstrates that most coal producers did not have firm or accurate plans for new capacity additions beyond 1980. The 1985 projection, therefore, tends to underestimate actual production potential.

An FEA study, Coal Availability Report, April 1977, (hereafter "Availability Report"), indicates current plans for nationwide production of uncommitted coal as follows:

Year:	*Production (million tons)*
1978	124.3
1979	243.1
1980	293.3
1981	350.0
1982	369.9
1983	396.2
1984	475.5
1985	544.9

b. *National demand exclusive of ESECA prohibition order demand.* The estimated national demand, excluding any increased demand resulting from FEA action under authority of Section 2(a) of ESECA, is as follows (FEA 1976 National Energy Outlook):

Year:	*Demand (million tons)*
1978	730
1979	764
1980	799
1981	842
1982	887
1983	935
1984	985
1985	1,040

c. *National ESECA prohibition order demand.* The estimated potential demand for coal resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA is no more than the following ("Availability Report"):

Year:	*Demand (million tons)*
1978	11.0
1979	22.4
1980	32.5
1981	35.8
1982	57.4
1983	59.8
1984	59.8

3. *Characteristic coal production and demand.* FEA's "Availability Report" identifies coal of specific quality characteristics available for use at these MFBI's. The survey is based on data from 31 mining companies that supplied useful information on 96 mining units. Responses from these companies identified planned production of coal which is not now committed to a specific buyer. For those companies which did not

respond to the survey, FEA estimated their uncommitted planned production based on their 1974 production.

a. *Characteristic coal requirements for these MFBI's.* FEA's "Availability Report" has determined that boilers of the type used at Hopewell 2 and 3 will be able to burn coal of the following characteristics and comply with all applicable air pollution control requirements.

Btu's/lb	[1] 10,000
Moisture (percent)	[2] 15
Ash (percent)	[2] 20
Volatile (percent)	[1] 15
Ash softening temp. (°F)	[1] 2,200
Sulfur (approximately) (percent)	[2] 1.8

[1] Minimum.
[2] Maximum.

b. *Characteristic coal demand from these MFBI's.* The potential demand for coal, of the type described above, which would result from this NOI is estimated to be as follows:

Year:	Demand (thousand tons)
Year: 1980 and thereafter	160

c. *National planned production, characteristic coal.* FEA's "Availability Report" has determined that coal of the type described in paragraph A.3.a., above, is uncommitted to a specific buyer and will be potentially available to these MFBI's in a nationwide market as follows:

Year:	Production (thousand tons)
1978	67,937
1979	127,138
1980	158,932
1981	189,318
1982	200,259
1983	214,838
1984	253,700

d. *National ESECA prohibition order demand for coal, regardless of characteristics.* The national planned production of characteristic coal, as stated in paragraph A.3.c., above, exceeds potential demand for coal regardless of characteristic expected from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. National ESECA Prohibition Order demand as previously stated in paragraph A.2.c., above, is no more than the following ("Availability Report"):

Year:	Demand (thousand tons)
1978	11,032
1979	22,434
1980	32,483
1981	35,755
1982	57,362
1983	59,815
1984	59,815

e. *Regional planned production, characteristic coal.* Coal with the characteristics described in paragraph A.3.a., above, is uncommitted and will be potentially available to these MFBI's (in a probable regional supply/demand relationship related to the location of these MFBI's) from BOM Districts 7, 8 and 13 as follows ("Availability Report"):

Year:	Production (thousand tons)
1978	26,032
1979	47,383
1980	53,082
1981	61,661
1982	65,354
1983	70,552
1984	80,964

f. *Regional ESECA prohibition order demand for coal, regardless of characteristics.* The expected regional production of characteristic coal, as stated in paragraph A.3.e., above, exceeds the potential demand for coal regardless of characteristic from BOM Districts 7, 8 and 13 expected to result from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. This potential regional demand is estimated in FEA's "Availability Report" to be no more than the following:

Year:	Demand (thousand tons)
1978	3,268
1979	9,149
1980	16,321
1981	18,005
1982	23,682
1983	24,095
1984	24,095

g. *Regional ESECA prohibition order demand for coal by sulfur characteristic.* The potential regional demand for coal from BOM Districts 7, 8 and 13 with a 1.41–2.2 percent sulfur content (which includes the 1.8 percent maximum sulfur content described in paragraph A.3.a., above) resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA is estimated in FEA's "Availability Report" to be no more than the following:

Year:	Demand (thousand tons) percent sulfur 1.41 to 2.2
1978	288
1979	1,042
1980	1,918
1980	1,918
1981	1,918
1982	1,918
1983	1,918
1984	1,918

The regional planned production of coal stated in paragraph A.3.e., above, with the characteristics described in paragraph A.3.a., above, far exceeds this potential ESECA regional demand for coal by sulfur characteristic.

4. *State or local laws.* FEA has found no State or local laws or policies limiting the extraction or utilization of coal that would adversely affect these production figures, and none have been brought to FEA's attention.

5. *Conclusion.* FEA's "Availability Report" has identified nationally and in BOM Districts 7, 8 and 13 uncommitted coal production that meets the requirements of Hopewell 2 and 3 as described in paragraph A.3.a., above. FEA proposes to find that this uncommitted coal exists in amounts sufficient in any year to meet the estimated additional demand for coal, both nationally and from these Districts, resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA.

Coal for these MFBI's will probably be bought from producers according to regional supply/demand relationships related to the MFBI's location from BOM Districts 7, 8 and 13. FEA observes, however, that the MFBI's could purchase coal in other markets as such production becomes available. (The Feasibility of Considering Expanded Use of Western Coal by Midwestern and Eastern Utilities in the Period 1978 and Beyond, School of Engineering, University of Pennsylvania, November 7, 1975.)

B. *Coal transportation.*—1. *Location of MFBI's and coal supply.* Based on an FEA study, Coal Transportation Availability Report, April 1977, (hereafter "Transportation Availability Report"), coal for Hopewell 2 and 3 would probably come from BOM District 8 as both the primary and alternate source of supply. While these supply regions are among the nearest available source able to supply complying coal to the plant, complying coal could be transferred by rail from other identified sources within the United States as well. The analysis of transportation availability is based on the most likely route as well as two alternate routes. These routes were chosen to demonstrate transportation availability.

2. *Route of coal shipment.* The primary route for coal delivery for Hopewell 2 and 3 is to originate coal near Andover in Southwestern Virginia. BOM District 8 on the Norfolk and Western (N&W) which would haul it via Lynchburg and Petersburg, Virginia, to Hopewell 2 and 3. The total rail distance is approximately 390 miles.

The alternate route from the primary supply area originates coal on the Southern Railway which would haul coal from BOM District 8 to Bristol, Tennessee. The N&W would then move it via Roanoke to Alberta, Virginia, where the Seaboard Coast Line (SCL) would pick up the coal for delivery to Hopewell 2 and 3. The total rail distance is about 420 miles.

The alternate route from the alternate supply area originates coal near Clinton, Tennessee, in BOM District 8 on the Southern Railway which would move the coal to Bristol, Tennessee. The N&W would move it via Roanoke, Virginia, to Alberta, Virginia, where the SCL would pick up the coal for delivery to Hopewell 2 and 3. The total rail distance is approximately 470 miles.

3. *Originating trunk carrier.* The N&W, originating carrier of coal for Hopewell 2 and 3, has approximately 54,000 hopper cars with an estimated average capacity of 83 tons. Using an average number of deliveries of 20 per year per 83-ton car, the N&W may need as many as 110 additional cars by 1979 to handle the increased demand from Hopewell 2 and 3. This estimate assumes that the railroad would neither have excess originating capacity nor obtain cars from other carriers in the originating vicinity.

The N&W indicated that the retirements from its hopper fleet are not expected to exceed 1,200 per year and that N&W has shop capacity to build 1,500 to 5,000 new cars per year, depending on demand.

FEA's "Transportation Availability Report" concluded that for all potential Prohibition Order candidates studied, there would be no major constraints in transporting coal. This study examined existing rail transportation car capacity, water transportation capacity, including unloading docks, where applicable, and took into account projections made by all carriers to meet the anticipated demand for all types of transportation facilities assuming all MFBI's studied were to receive order under Section 2(a) of ESECA.

The N&W indicated transportation facilities at mines sites within BOM District 8 served by N&W are operating satisfactorily and that loading facilities are adequate to handle the increased coal volumes.

FEA has not found nor has it been informed of any apparent constraints to carrying coal for any alternate or intermediate carriers should they be used.

4. *Destination carrier and MFBI facilities.* Hopewell 2 and 3 are served by both the

N&W and SCL. Continental reported that coal had been burned as a boiled fuel at Hopewell 2 and 3 until the 1969–1971 period. Both the N&W and SCL tracks are now used for heavy freight service. There are no other obstacles to the delivery of coal to Hopewell 2 and 3.

5. *Conclusion.* Coal transportation facilities will be available for the period a Prohibition Order is expected to be in effect since no major constraints to coal delivery over the primary route to Hopewell 2 and 3 presently exist, and alternate routes are available.

APPENDIX

PROPOSED FINDINGS AND RATIONALE FOR NOTICE OF INTENTION TO ISSUE A PROHIBITION ORDER

ESECA and the FEA regulations require FEA to make certain findings before issuing a Prohibition Order to a major fuel burning installation (MFBI). FEA's proposed findings are set out below with respect to the MFBI's named below. Supporting rationale and conclusions are also set forth.

Docket No.	Owner	Installation	Unit No.	Location
OCU-1512....	E.I. DuPont de NeMours & Co....	Seaford Plant.....	2, 3	Seaford, Del.

These findings, which are now proposed by FEA, are based on the information that has been provided to and developed by FEA prior to the issuance of this Notice of Intention (NOI) to issue a Prohibition Order.

E. I. DuPont de Nemours & Company shall be referred to as the "owner" and as "DuPont". Seaford Plant Units 2 and 3 shall be referred to as the "MFBI's" and as "Seaford 2 and 3".

I. *Capability and necessary plant equipment to burn coal.*

FEA proposes to find that on June 22, 1974, Seaford 2 and 3 had the capability and necessary plant equipment to burn coal. This proposed finding is based on the facts and interpretations stated below:

A. DuPont, in a Major Fuel Burning Installation Coal Conversion Report, Section II, Questions 6, and 12–14, (Form FEA C–602–S–0), filed on May 12, 1975, indicated that each MFBI had in place on June 22, 1974, a boiler that was capable of burning coal. The boilers had been designed and constructed or modified to burn coal as their primary energy source, notwithstanding the fact that on June 22, 1974, the MFBI's may not have been burning coal as their primary energy source.

B. Based on information DuPont filed with FEA dated July 20, 1976, April 7, 1977, and other information available to FEA, the following plant equipment and facilities at Seaford 2 and 3 would have to be acquired or refurbished in order for these MFBI's to burn coal as their primary energy source:

1. Unloaders.
2. Conveyors.
3. Crushers.
4. Pulverizers.
5. Scales.
6. Feeders.
7. Combustors.
8. Air heaters.
9. Soot blowers.
10. Special instrumentation and controls.
11. Ash handling and ponding equipment.

C. FEA proposes to find that on June 22, 1974, Seaford 2 and 3 had all other significant plant equipment and facilities associated with the burning of coal.

D. Within the meaning of ESECA and the regulations promulgated pursuant thereto, the equipment and facilities listed in paragraph B, above, do not individually or in combination constitute a lack of capability and necessary plant equipment to burn coal as of June 22, 1974.

II. *The burning of coal in lieu of natural gas or petroleum products is practicable and consistent with the purposes of ESECA.*

FEA proposes to find that the burning of coal in lieu of petroleum products or natural gas at Seaford 2 and 3 is practicable and consistent with the purposes of ESECA. This proposed finding is based upon an analysis by FEA of the fuel consumption of these boilers for the period 1973–1975, the remaining useful service life of each boiler after conversion, the net operating cost differential that would result from compliance with a Prohibition Order, as well as the facts and interpretations referenced below:

A. *The burning of coal is practicable.*—1. *Costs associated with burning coal.*—a. *Capital investment costs.* The total estimated initial capital investment costs, including financing costs, that would result from the acquisition and refurbishment of equipment and facilities associated with the burning of coal at Seaford 2 and 3 have been determined.

This determination was based on existing FEA information and analysis as well as information filed with FEA by the owner. Approximate costs to comply with applicable environmental protection requirements have also been considered, including the cost of compliance with the air pollution control requirements of the Clean Air Act.

b. *Annual operating and maintenance costs.* The expected increase in operating and maintenance costs, exclusive of fuel costs, that would result from the burning of coal has been calculated based on information supplied by the owner or otherwise acquired by FEA.

c. *Fuel costs.* Based on an analysis of annual fuel consumption and fuel cost information supplied by the owner and/or, in appropriate circumstances, upon FEA's fuel cost estimates, FEA has determined that the burning of coal in lieu of natural gas or petroleum products at Seaford 2 and 3 will result in a decrease in annual fuel costs.

d. *Net operating cost differential.* Based on the factors stated in paragraph A.1.a.–c., above, as well as the expected remaining useful life of the boilers after conversion, FEA has determined that the net annual operating cost differential (which represents the difference between operating the boilers with coal and alternate fuel(s) as their primary energy source), resulting from the conversion of Seaford 2 and 3 will represent an annual savings.

2. *Reasonableness of costs of conversion.* The foregoing analysis of the costs of conversion provided the basis for deciding whether the conversion of Seaford 2 and 3 is reasonable.

As a result of conversion, DuPont will incur additional capital investment costs, including financing costs, and additional annual operating and maintenance costs, exclusive of fuel costs, but will experience an annual savings in its total fuel costs for the expected remaining useful service life of the boilers after conversion.

Since all increased costs of conversion will be offset by the decrease in fuel costs, a net decrease in the annual cost of operation of the boilers should result.

The use of coal at Seaford 2 and 3 will result in a substantial annual savings of barrels of oil that otherwise would be used as a boiler fuel.

FEA proposes to find that, since the increased annual capital investment costs and operating and maintenance costs at Seaford 2 and 3 are totally offset by the current fuel cost differential between oil and coal burning at Seaford 2 and 3, and potential future increases in the fuel cost differential in favor of coal, the additional costs associated with burning coal are reasonable.

3. *Financial capability of the owner*—a. *Recovery of capital investment.* FEA proposes to find that compliance with a Prohibition Order by Seaford 2 and 3 would be economically feasible. FEA's analysis took into consideration the financial capability of the owner and is based upon the owner's financial position as reported in the Dun and Bradstreet Reference Book (March 1977). Where necessary, FEA performed an independent analysis of the owner's financial capability, considering such factors as the owner's current financial statement and the additional capital investment required for the owner to comply with this NOI and all other NOI's which are currently under consideration, as well as additional capital investment costs related to all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2 (a) and (c) of ESECA to MFBI's owned by DuPont. FEA related these additional capital investment costs to the total capitalization of DuPont and the remaining useful life after conversion of Seaford 2 and 3.

FEA does not consider the effect of the added capital investment costs to represent an unreasonable burden given the financial capabilities of DuPont to assume such costs.

b. *Total annual costs associated with conversion.* The total estimated annual increase in costs (amortized increased capital investment costs and other costs, exclusive of fuel costs) associated with the burning of coal as opposed to oil attributable to compliance with this NOI and all other NOI's which are currently under consideration has been determined. FEA also took into consideration total annual costs resulting from compliance with all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2 (a) and (c) of ESECA to DuPont MFBI's.

However, due to the potential offsetting value of fuel cost savings attributable to compliance with this NOI and all other NOI's currently under consideration, DuPont's total annual costs after conversion should decrease.

B. *Consistency with the purposes of ESECA.*—Because the issuance of a Prohibition Order to Seaford 2 and 3 will discourage the use of natural gas or petroleum products and encourage the increased use of coal, FEA proposes to conclude that this action would be consistent with the purpose of ESECA to provide a means to assist in meeting the essential needs of the United States for fuels.

On the basis of the environmental analysis which FEA is required to conduct prior to issuance of a Notice of Effectiveness of a Prohibition Order, as well as the necessity for these MFBI's to comply with the Clean Air Act and other applicable environmental protection requirements, FEA proposes to conclude that a Prohibition Order to Seaford 2 and 3 would be consistent with the purpose of ESECA to provide for a means to assist in meeting the essential needs of the United States for fuels in a manner which is consistent, to the fullest extent practicable, with existing national commitments to protect and improve the environment.

III. Coal and coal transportation facilities will be available to these MFBI's during the period until December 31, 1984.

A. Coal availability.—1. *National coal reserves.* United States coal reserves are more than sufficient to supply national needs for the foreseeabe future. U.S. Department of the Interior, Bureau of Mines (BOM) data show a demonstrated coal reserve base of over 400 billion tons, over half of which is currently technically and economically recoverable (Demonstrated Coal Reserve Base of the United States, by Sulfur Category, on January 1, 1974, Bureau of Mines (May 1975) (hereafter "BOM Survey")). Within these recoverable reserves approximately. 200 billion tons contain 1% or less sulfur by weight. To determine when certain quantities of these reserves are expected to be available. FEA has examined several studies referenced herein, which together provide the best current evidence as to coal availability for the period ending December 31, 1984.

2. *National coal production and demand.*—The comparison, stated below of estimated national coal production, national coal demand, and the total tonnage of uncommitted planned national coal production (derived from responses to a survey of coal producing companies) shows that there should be sufficient production of coal to met the total national demand through 1980. Beyond 1980, plans for new production are not yet fully developed because few coal producers have firm expansion plans that extent that far into the future; however, the projected total planned national coal production for 1985 already meets 99% of the total U.S. demand expected in 1985. With time, more potential mine developments will become firm plans, thus increasing the planned production.

a. *National coal production.* It is conservatively estimated that it will be practicable to product coal nationally in at least the following quantities:

Year:	*Production potential (million tons)*
1977	732.3
1978	791.6
1979	851.4
1980	911.7
1981	950.0
1982	994.1
1983	1,017.4
1984	1,028.7
1985	1,029.6

The figures shown above are derived from FEA's Coal Mine Expansion Study (May 1976). This study demonstrates that most coal producers did not have firm or accurate plans for new capacity additions beyond 1980. The 1985 projection, therefore, tends to underestimate actual production potential.

An FEA study, Coal Availability Report, April 1977, (hereafter "Availability Report"), indicates current plans for nationwide production of uncommitted coal as follows:

Year:	*Demand (million tons)*
1978	124.3
1979	248.1
1980	293.3
1981	350.0
1982	369.9
1983	396.2
1984	475.5
1985	544.9

b. *National demand exclusive of ESECA prohibition order demand.* The estimated national demand, excluding any increased demand resulting from FEA action under the authority of Section 2(a) of ESECA, is as follows (FEA 1976 National Energy Outlook):

Year:	*Demand (million tons)*
1978	730
1979	764
1980	799
1981	842
1982	887
1983	935
1984	985
1985	1,040

c. *National ESECA prohibition order demand.* The estimated potential demand for coal resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA is no more than the following (Availability Report"):

Year:	*Demand (million tons)*
1978	11.0
1979	22.4
1980	32.5
1981	35.8
1982	57.4
1983	59.8
1984	59.8

3. *Characteristic coal production and demand.*—FEA's "Availability Report" identifies coal of specific quality characteristics available for use at these MFBI's. The survey is based on data from 31 mining companies that supplied useful information on 96 mining units. Responses from these companies identified planned production of coal which is not now committed to a specific buyer. For those companies which did not respond to the survey, FEA estimated their uncommitted planned production based on their 1974 production.

a. *Characteristic coal requirements for these MFBI's.* FEA's "Availability Report" has determined that boilers of the type used at Seaford 2 and 3 will be able to burn coal of the following characteristics and comply with all applicable air pollution control requirements.

Btu's/lb.	[1] 10,000
Moisture (percent	[2] 15
Ash (percent)	[2] 20
Volatile (percent)	[1] 15
Ash softening temp. (°F)	[1] 2,200
Sulfur (approximately) (percent)	[2] 1.0

[1] Minimum.
[2] Maximum.

b. *Characteristic coal demand from these MFBI's.* The potential demand for coal, of the type described above, which would result from this NOI is estimated to be as follows:

	Demand (thousand tons)
Year: 1979 and thereafter	104

c. *National planned production, characteristic coal.* FEA's "Availability Report" has determined that coal of the type described in paragraph A.3.a., above, is uncommitted to a specific buyer and will be potentially available to these MFBI's in a nationwide market as follows:

Year	*Production (thousand tons)*
1978	54,090
1979	97,325
1980	124,328
1981	149,252
1982	158,268
1983	170,320
1984	201,207

d. *National ESECA prohibition order demand for coal, regardless of characteristics.* The national planned production of characteristic coal, as stated in paragraph A.3.c., above, exceeds potential demand for coal regardless of characteristic expected from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. National ESECA Prohibition Order demand as previously stated in paragraph A.2.c., above is no more than the following ("Availability Report"):

Year:	*Demand (thousand tons)*
1978	11,032
1979	22,434
1980	32,483
1981	35,755
1982	57,362
1983	59,815
1984	59,815

e. *Regional planned production, characteristic coal.* Coal with the characteristics described in paragraph A.3.a., above, is uncommitted and will be potentially available to these MFBI's (in a probable regional supply/demand relationship related to the location of these MFBI's) from BOM Districts 7, 8 and 13 as follows ("Availability Report"):

Year:	*Production (thousand tons)*
1978	19,962
1979	33,160
1980	37,779
1981	44,246
1982	47,145
1983	51,293
1984	58,891

f. *Regional ESECA prohibition order demand for coal, regardless of characteristic.* The expected regional production of characteristic coal, as stated in paragraph A.3.e., above, exceeds the potential demand for coal regardless of characteristic from BOM Districts 7, 8, and 13 expected to result from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. This potential regional demand is estimated in FEA's "Availability Report" to be no more than the following:

Year:	*Demand (thousand tons)*
1978	3,268
1979	9,149
1980	16,771
1981	18,005
1982	23,682
1983	24,095
1984	24,095

g. *Regional ESECA prohibition order demand for coal by sulfur characteristic.* The potential regional demand for coal from BOM Districts, 7, 8, and 13 with a 0.61–1.4% sulfur content (which includes the 1.0% maximum sulfur content described in paragraph A.3.a., above) resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA is estimated in FEA's "Availability Report" to be no more than the following:

Year:	*Demand (thousand tons) percent sulfur 0.61 to 1.4*
1978	2,831
1979	5,825
1980	10,464
1981	11,673
1982	16,937
1983	16,937
1984	16,937

The regional planned production of coal stated in paragraph A.3.c., above, with the characteristics described in paragraph A.3.a., above, far exceeds this potential ESECA regional demand for coal by sulfur characteristic.

4. *State or local laws.*—FEA has found no state or local laws or policies limiting the extraction or utilization of coal that would adversely affect these production figures, and none have been brought to FEA's attention.

5. *Conclusion.*—FEA's "Availability Report" has identified nationally and in BOM Districts 7, 8, and 13 uncommitted coal production that meets the requirements of Seaford 2 and 3 as described in paragraph A.3.a., above. FEA proposes to find that this uncommitted coal exists in amounts sufficient in any year to meet the estimated additional demand for coal, both nationally and from these Districts, resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA.

Coal for these MFBI's will probably be bought from producers according to regional supply/demand relationships related to the MFBI's location from BOM Districts 7, 8 and 13. FEA observes, however, that the MFBI's could purchase coal in other markets as such production becomes available. (The Feasibility of Considering Expanded Use of Western Coal by Midwestern and Eastern Utilities in the Period 1978 and Beyond, School of Engineering, University of Pennsylvania, November 7, 1975.)

B. *Coal transportation.*—1. *Location of MFBI's and coal supply.*—Based on an FEA study, Coal Transportation Availability Report, April 1977 (hereafter "Transportation Availability Report"), coal for the Seaford 2 and 3 would probably come from BOM District 8 as the primary supply area and from BOM District 2 as the alternate supply area. While these supply areas are the nearest available sources able to supply complying coal to the plant, complying coal could be transferred by rail from other identified sources within the United States as well. The analysis of transportation availability is based on the most likely routes as well as two alternate routes. These routes were chosen to demonstrate transportation availability.

2. *Route of coal shipment.*—The primary route for coal delivery for Seaford 2 and 3 is to originate coal in BOM District 8 near Charleston, West Virginia on the Baltimore and Ohio (Chessie System). The Chessie System would move it via Hagerstown, Maryland to Newark, Delaware where Consolidated Railroad Corporation (Conrail) would pick it up for delivery to Seaford 2 and 3. The total rail distance is approximately 530 miles.

The alternate route from the primary supply area is to originate coal in BOM District 8 on the Chesapeake and Ohio (Chessie System) which moves it via Covington, Virginia and Washington, D.C. to Newark, Delaware where Conrail would pick it up for delivery to Seaford 2 and 3. The total rail distance is approximately 550 miles.

An alternate route from the alternate supply area would originate coal in BOM District 2 in Allegheny or Westmoreland Counties near Pittsburgh, Pennsylvania on Conrail, which would move it via Coatesville, Pennsylvania for delivery at Seaford 2 and 3. The total rail distance is approximately 350 miles.

3. *Originating trunk carrier.*—The Chessie System, originating carrier of coal for Seaford 2 and 3 has about 76,000 hopper cars with an average capacity of 77 tons. Using an average of 20 deliveries per year per 77-ton car, the Chessie System may need as many as 86 additional cars to handle the increased demand from Seaford 2 and 3. This estimate assumes that the railroad would neither have excess originating capacity nor obtain cars from other carriers in the originating capacity nor obtain cars from other carriers in the originating vicinity. The Chessie System has indicated that an existing appropriation to buy and build new cars will increase their holdings to over 80,000.

FEA's "Transportation Availability Report" concluded that for all potential Prohibition Order candidates studied, there would be no major constraints in transporting coal. The study examined existing rail transportation car capacity, water transportation capacity, including unloading docks, where applicable, and took into account projections made by all carriers to meet the anticipated demand for all types of transportation facilities assuming all MFBI's studied were to receive orders under Section 2(a) of ESECA.

FEA has not found nor has it been informed of any apparent constraints to carrying coal for any alternate or intermediate carriers should they be used.

4. *Destination carrier and MFBI facilities.*—Seaford 2 and 3 has used coal as an alternate fuel and now maintains an emergency inventory in storage silos. No difficulty is foreseen in delivering and receiving coal-using facilities now in place.

There are no other obstacles to the delivery of coal to Seaford 2 and 3.

5. *Conclusion.*—Coal transportation facilities will be available for the period a Prohibition Order is expected to be in effect since no major constraints to coal delivery over the primary route to Seaford 2 and 3 presently exist, and alternate routes are available.

APPENDIX

PROPOSED FINDINGS AND RATIONALE FOR NOTICE OF INTENTION TO ISSUE A PROHIBITION ORDER

ESECA and the FEA regulations require FEA to make certain findings before issuing a Prohibition Order to a major fuel burning installation (MFBI). FEA's proposed findings are set out below with respect to the MFBI named below. Supporting rationale and conclusions are also set forth.

Docket No.	Owner	Installation	Unit No.	Location
OCU-1673.....	Allied Chemical.....	Hopewell Chemical Plant...	12	Hopewell, Va.

These findings, which are now proposed by FEA, are based on the information that has been provided to and developed by FEA prior to the issuance of this Notice of Intention (NOI) to issue a Prohibition Order.

Allied Chemical shall be referred to as the "owner" and as "Allied". Hopewell Chemical Plant Unit 12 shall be referred to as the "MFBI" and as "Hopewell Chemical 12".

I. *Capability and necessary plant equipment to burn coal.*

FEA proposes to find that on June 22, 1974, Hopewell Chemical 12 had the capability and necessary plant equipment to burn coal. This proposed finding is based on the facts and interpretations stated below:

A. Allied, in a Major Fuel Burning Installation Coal Conversion Report, Section II, Questions 6, and 12–14 (Form FEA C–602–S–0), filed on May 14, 1975, indicated that the MFBI had in place on June 22, 1974, a boiler that was capable of burning coal. The boiler had been designed and constructed or modified to burn coal as its primary energy source, notwithstanding the fact that on June 22, 1974, the MFBI may not have been burning coal as its primary energy sourcce.

B. Based on information Allied filed with FEA dated August 5, 1976, and other information available to FEA, the following plant equipment and facilities at Hopewell Chemical 12 would have to be acquired or refurbished in order for this MFBI to burn coal as its primary energy source:

1. Bunkers
2. Soot blower
3. Burner
4. Conveyor
5. Pulverizers
6. Scales
7. Feeders
8. Unloaders
9. Ash handling equipment

C. FEA proposes to find that on June 22, 1974, Hopewell Chemical 12 had all other significant plant equipment and facilities associated with the burning of coal.

D. Within the meaning of ESECA and the regulations promulgated pursuant thereto, the equipment and facilities listed in paragraph B, above, do not individually or in combination constitute a lack of capability and necessary plant equipment to burn coal as of June 22, 1974.

II. *The burning of coal in lieu of natural gas or petroleum products is practicable and consistent with the purposes of ESECA.*

FEA proposes to find that the burning of coal in lieu of petroleum products or natural gas at Hopewell Chemical 12 is practicable and consistent with the purposes of ESECA. This proposed finding is based upon an analysis by FEA of the fuel consumption of this boiler for the period 1973–1977, the remaining useful service life of the boiler after conversion, the net operating cost differential that would result from compliance with a Prohibition Order, as well as the facts and interpretations referenced below:

A. *The burning of coal is practicable.*—1. *Costs associated with burning coal.*—a. *Capital investment costs.* The total estimated initial capital investment costs, including financing costs, that would result from the acquisition and refurbishment of equipment and facilities associated with the burning of coal at Hopewell Chemical 12 have been determined.

This determination was based on existing FEA information and analysis as well as information filed with FEA by the owner. Approximate costs to comply with applicable environmental protection requirements have also been considered, including the cost of compliance with the air pollution control requirements of the Clean Air Act.

b. *Annual operating and maintenance costs.* The expected increase in operating and maintenance costs, exclusive of fuel costs, that would result from the burning of coal has been calculated based on information supplied by the owner or otherwise acquired by FEA.

c. *Fuel costs.* Based on an analysis of annual fuel consumption and fuel cost information supplied by the owner and/or, in appropriate circumstances, upon FEA's fuel cost estimates, FEA has determined that the burning of coal in lieu of natural gas or petroleum products at Hopewell Chemical 12 will result in a decrease in annual fuel costs.

d. *Net operating cost differential.* Based on the factors stated in paragraphs A.1.a.–c., above, as well as the expected remaining useful life of the boiler after conversion, FEA has determined that the net annual operating cost differential (which represents

the difference between operating the boiler with coal and alternate fuel(s) as its primary energy source), resulting from the conversion of Hopewell Chemical 12 will represent an annual savings.

2. *Reasonableness of costs of conversion.*—The foregoing analysis of the costs of conversion provided the basis for deciding whether the conversion of Hopewell Chemical 12 is reasonable.

As a result of conversion, Allied will incur additional capital investment costs, including financing costs, and additional annual operating and maintenance costs, exclusive of fuel costs, but will experience an annual savings in its total fuel costs for the expected remaining useful service life of the boiler after conversion.

Since all increased costs of conversion will be offset by the decrease in fuel costs, a net decrease in the annual cost of operation of the boiler should result.

The use of coal at Hopewell Chemical 12 will result in a substantial annual savings of barrels of oil that otherwise would be used as a boiler fuel.

FEA proposes to find that, since the increase in capital investment costs and operating and maintenance costs at Hopewell Chemical 12 are totally offset by the current fuel cost differential between oil and coal burning at Hopewell Chemical 12, and potential future increases in the fuel cost differential, in favor of coal, the additional costs associated with burning coal are reasonable.

3. *Financial capability of the owner.*—a. *Recovery of capital investment.* FEA proposes to find that compliance with a Prohibition Order by Hopewell Chemical 12 would be economically feasible. FEA's analysis took into consideration the financial capability of the owner and is based upon the owner's financial position as reported in the Dun and Bradstreet Reference Book (March 1977). Where necessary, FEA performed an independent analysis of the owner's financial capability, considering such factors as the owner's current financial statement and the additional capital investment required for the owner to comply with this NOI and all other NOI's which are currently under consideration, as well as additional capital investment costs related to all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2 (a) and (c) of ESECA to MFBI's owned by Allied. FEA related these additional capital investment costs to the total capitalization of Allied and the remaining useful life after conversion of Hopewell Chemical 12.

FEA does not consider the effect of the added capital investment costs to represent an unreasonable burden given the financial capabilities of Allied to assume such costs.

b. *Total annual costs associated with conversion.* The total estimated annual increase in costs (amortized increased capital investment costs and other costs, exclusive of fuel costs) associated with the burning of coal as opposed to oil attributable to compliance with this NOI and all other NOI's which are currently under consideration has been determined. FEA also took into consideration total annual costs resulting from compliance with all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2 (a) and (c) of ESECA to Allied MFBI's.

However, due to the potential offsetting value of fuel cost savings attributable to compliance with this NOI and all other NOI's currently under consideration, Allied's total annual costs after conversion should decrease.

B. *Consistency with the purposes of ESECA.*—Because the issuance of a Prohibition Order to Hopewell Chemical 12 will discourage the use of natural gas or petroleum products and encourage the increased use of coal, FEA proposes to conclude that this action would be consistent with the purpose of ESECA to provide a means to assist in meeting the essential needs of the United States for fuels.

On the basis of the environmental analysis which FEA is required to conduct prior to issuance of a Notice of Effectiveness of a Prohibition Order, as well as the necessity for this MFBI to comply with the Clean Air Act and other applicable environmental protection requirements, FEA proposes to conclude that a Prohibition Order to Hopewell Chemical 12 would be consistent with the purpose of ESECA to provide for a means to assist in meeting the essential needs of the United States for fuels in a manner which is consistent, to the fullest extent practicable, with existing national commitments to protect and improve the environment.

III. *Coal and coal transportation facilities will be available to this MFBI during the period until December 31, 1984.*

A. *Coal availability.*—1. *National coal reserves.* United States coal reserves are more than sufficient to supply national needs for the foreseeable future. U.S. Department of the Interior, Bureau of Mines (BOM) data show a demonstrated coal reserve base of over 400 billion tons, over half of which is currently technically and economically recoverable (Demonstrated Coal Reserve Base of the United States, by Sulfur Category, on January 1, 1974, Bureau of Mines (May 1975) [hereafter "BOM Survey"]). Within these recoverable reserves approximately 200 billion tons contain 1% or less sulfur by weight. To determine when certain quantities of these reserves are expected to be available, FEA has examined several studies referenced herein, which together provide the best current evidence as to coal availability for the period ending December 31, 1984.

2. *National coal production and demand.*—The comparison, stated below, of estimated national coal production, national coal demand, and the total tonnage of uncommitted planned national coal production (derived from responses to a survey of coal producing companies) shows that there should be sufficient production of coal to meet the total national demand through 1980. Beyond 1980, plans for new production are not yet fully developed because few coal producers have firm expansion plans that extend that far into the future; however, the projected total planned national coal production for 1985 already meets 99% of the total U.S. demand expected in 1985. With time, more potential mine developments will become firm plans, thus increasing the planned production.

a. *National coal production.* It is conservatively estimated that it will be practicable to produce coal nationally in at least the following quantities:

Year:	*Production potential (million tons)*
1977	732.3
1978	791.6
1979	851.4
1980	911.7
1981	960.0
1982	994.3
1983	1,017.4
1984	1,028.7
1985	1,029.6

The figures shown above are derived from FEA's *Coal Mine Expansion Study* (May 1976). This study demonstrates that most coal producers did not have firm or accurate plans for new capacity additions beyond 1980. The 1985 projection, therefore, tends to underestimate actual production potential.

An FEA study, Coal Availability Report, April 1977 (hereafter "Availability Report"), indicates current plans for nationwide production of uncommitted coal as follows:

Year:	*Production (million tons)*
1978	194.3
1979	243.1
1980	293.3
1981	350.0
1982	369.9
1983	306.2
1984	475.5
1985	544.9

b. *National demand exclusive of ESECA prohibition order demand.* The estimated national demand, excluding any increased demand resulting from FEA action under the authority of Section 2(a) of ESECA, is as follows (FEA 1976 National Energy Outlook):

Year:	*Demand (million tons)*
1978	730
1979	764
1980	799
1981	842
1982	887
1983	935
1984	985
1985	1,040

c. *National ESECA prohibition order demand.* The estimated potential demand for coal resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA is no more than the following ("Availability Report"):

Year:	*Demand (million tons)*
1978	11.0
1979	22.4
1980	32.5
1981	35.8
1982	57.4
1983	59.8
1984	59.8

3. *Characteristic coal production and demand.*—FEA's "Availability Report" identifies coal of specific quality characteristics available for use at this MFBI. The survey is based on data from 31 mining companies that supplied useful information on 96 mining units. Responses from these companies identified planned production of coal which is not now committed to a specific buyer. For these companies which did not respond to the survey, FEA estimated their uncommitted planned production based on their 1974 production.

a. *Characteristic coal requirements for this MFBI.* FEA's "Availability Report" has determined that a boiler of the type used at Hopewell Chemical 12, will be able to burn coal of the following characteristics and comply with all applicable air pollution control requirements.

Btu's/lb	[1] 10,000
Moisture (percent)	[2] 12
Ash (percent)	[2] 20
Volatile (percent)	[1] 15
Ash softening temp. (°F)	[1] 2,200
Sulfur (approximately) (percent)	[2] 1.80

[1] Minimum.
[2] Maximum.

b. *Characteristic coal demand from this MFBI.* The potential demand for coal, of the type described above, which would result from this NOI is estimated to be as follows:

Year:	Demand (thousand tons)
Year: 1979 and thereafter	144

c. *National planned production, characteristic coal.* FEA's "Availability Report" has determined that coal of the type described in paragraph A.3.a., above, is uncommitted to a specific buyer and will be potentially available to this MFBI in a nationwide market as follows:

Year:	Production (thousand tons)
1978	67,937
1979	127,138
1980	158,932
1981	189,318
1982	200,259
1983	214,838
1984	253,700

d. *National ESECA prohibition order demand for coal, regardless of characteristics.* The national planned production of characteristic coal, as stated in paragraph A.3.c., above, exceeds potential demand for coal regardless of characteristic expected from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. National ESECA Prohibition Order demand as previously stated in paragraph A.2.c., above, is no more than the following ("Availability Report"):

Year:	Demand (thousand tons)
1978	11,032
1979	22,434
1980	32,483
1981	35,755
1982	57,362
1983	59,815
1984	59,815

e. *Regional planned production, characteristic coal.* Coal with the characteristics described in paragraph A.3.a., above, is uncommitted and will be potentially available to the MFBI (in a probable regional supply/demand relationship related to the location of the MFBI) from BOM Districts 7, 8 and 13 as follows ("Availability Report"):

Year:	Production (thousand tons)
1978	26,032
1979	47,383
1980	53,082
1981	61,661
1982	65,354
1983	70,552
1984	80,964

f. *Regional ESECA prohibition order demand for coal, regardless of characteristic.* The expected regional production of characteristic coal, as stated in paragraph A.3.e., above, exceeds the potential demand for coal regardless of characteristic from BOM Districts 7, 8 and 13 expected to result from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. This potential regional demand is estimated in FEA's "Availability Report" to be no more than the following:

Year:	Demand (thousand tons)
1978	3,268
1979	9,149
1980	16,321
1981	18,005
1982	23,682
1983	24,095
1984	24,095

g. *Regional ESECA prohibition order demand for coal by sulfur characteristic.* The potential regional demand for coal from BOM Districts 7, 8 and 13 with a 1.82–2.2% sulfur content (which includes the 1.82% maximum sulfur content described in paragraph A.3.a., above) resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA is estimated in FEA's "Availability Report" to be no more than the following:

Year:	Demand (thousand tons) Percent Sulfur 1.81 to 2.2
1978	62
1979	145
1980	145
1981	145
1982	145
1983	145
1984	145

The regional planned production of coal stated in paragraph A.3.e., above, with the characteristics described in paragraph A.3.a., above, far exceeds this potential ESECA regional demand for coal by sulfur characteristic.

4. *State or local laws.*—FEA has found no state or local laws or policies limiting the extraction or utilization of coal that would adversely affect these production figures, and none have been brought to FEA's attention.

5. *Conclusion.*—FEA's "Availability Report" has identified nationally and in BOM Districts 7, 8 and 13 uncommitted coal production that meets the requirements of Hopewell Chemical 12 as described in paragraph A.3.a., above. FEA proposes to find that this uncommited coal exists in amounts sufficient in any year to meet the estimated additional demand for coal, both nationally and from these Districts, resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA.

Coal for this MFBI will probably be bought from producers according to regional supply demand relationships related to the MFBI's location from BOM Districts 7, 8 and 13. FEA observes, however, that the MFBI could purchase coal in other markets as such production becomes available. (The Feasibility of Considering Expanded Use of Western Coal by Midwestern and Eastern Utilities in the Period 1978 and Beyond, School of Engineering, University of Pennsylvania, November 7, 1975.)

B. *Coal transportation.*—1. *Location of MFBI and coal supply.* Based on an FEA study, Coal Transportation Availability Report, April 1977, (hereafter "Transportation Availability Report"), coal for Hopewell Chemical 12 would come from BOM District 8 as both the primary and alternate source of supply. While these supply regions are among the nearest available sources able to supply complying coal to the plant, complying coal could be transferred by rail from other identified sources within the United States as well. The analysis of transportation availability is based on the most likely route as well as two alternate routes. These routes were chosen to demonstrate transportation availability.

2. *Route of coal shipment.*—The primary route for coal delivery for Hopewell Chemical 12 is to originate coal near Andover, Virginia, in BOM District 8, on the Norfolk and Western (N&W), which would move it via Lynchburg and Petersburg, Virginia, to the plant. The total rail distance is approximately 390 miles.

The alternate route from the primary supply area originates coal in the same area on the Southern Railway which would haul the coal to Bristol, Tennessee. The N&W would then move the coal via Roanoke to Alberta, Virginia where the Seaboard Coast Line (SCL) would pick the coal up for delivery to the plant. The total rail distance is about 420 miles.

The alternate route from the alternate supply area is to originate coal near Clinton, Tennessee in BOM District 8 on the Southern Railway which would move the coal to Bristol, Tennessee. The N&W would move the coal via Roanoke, Virginia to Alberta, Virginia where the SCL would pick it up for delivery to Hopewell Chemical 12. The total rail distance is approximately 470 miles.

3. *Originating trunk carrier.*—The N&W, the originating carrier of coal for Hopewell Chemical 12, has approximately 54,000 hopper cars with an estimated average capacity of 83 tons. Using an average number of deliveries of 20 per year per 83-ton car, the N&W may need as many as 80 additional cars by 1979 to handle the increased demand from Hopewell Chemical 12. This estimate assumes that the railroad would neither have excess originating capacity nor obtain cars from other carriers in the originating vicinity. The N&W indicated that the retirements from its hopper fleet are not expected to exceed 1,200 per year and that N&W has shop capacity to build 1,500 to 5,000 new cars per year, depending on the demand.

FEA's "Transportation Availability Report" concluded that for all potential Prohibition Order candidates studied, there would be no major constraints in transporting coal. This study examined existing rail transportation car capacity, water transportation capacity, including unloading docks, where applicable, and took into account projections made by all carriers to meet the anticipated demand for all types of transportation facilities assuming all MFBI's studied were to receive orders under Section 2(a) of ESECA.

The N&W indicated that transportation facilities at those sites within BOM District 8 served by N&W are operating satisfactorily and that loading facilities are adequate to handle the increased volume.

FEA has not found nor has it been informed of any apparent constraints to carrying coal for any alternate or intermediate carriers should they be used.

4. *Destination carrier and MFBI facilities.*—Hopewell, Virginia is served by both the N&W and SCL. Hopewell Chemical 12 reported that coal had been burned as a boiler fuel until a few years ago. Both the N&W and SCL tracks are now used for heavy freight service.

There are no other obstacles to the delivery of coal to this MFBI.

5. *Conclusion.*—Coal transportation facilities will be available for the period a Prohibition Order is expected to be in effect since no major constraints to coal delivery over the primary route to Hopewell Chemical 12 presently exist, and alternate routes are available.

APPENDIX

PROPOSED FINDINGS AND RATIONALE FOR NOTICE OF INTENTION TO ISSUE A PROHIBITION ORDER

ESECA and the FEA regulations require FEA to make certain findings before issuing a Prohibition Order to a major fuel burning installation (MFBI). FEA's proposed findings are set out below with respect to the MFBI named below. Supporting rationale and conclusions are also set forth.

Docket No.	Owner	Installation	Unit No.	Location
OCU-1716	Union Carbide Corp.	Institute Plant	12	Institute, W. Va.

These findings, which are now proposed by FEA, are based on the information that has been provided to and developed by FEA prior to the issuance of this Notice of Intention (NOI) to issue a Prohibition Order.

Union Carbide Corporation shall be referred to as the "owner" and as "Union Carbide". Institute Unit 12 shall be referred to as the "MFBI" and as "Institute 12".

I. *Capability and necessary plant equipment to burn coal.*

FEA proposes to find that on June 22, 1974, Institute 12 had the capability and necessary plant equipment to burn coal. This proposed finding is based on the facts and interpretations stated below:

A. Union Carbide, in a Major Fuel Burning Installation Coal Conversion Report, Section II, Questions 6, and 12–14, (Form FEA C–602–S–0) filed on May 20, 1975 indicated that the MFBI had in place on June 22, 1974, a boiler that was capable of burning coal. The boiler had been designed and constructed or modified to burn coal as its primary energy source, notwithstanding the fact that on June 22, 1974, the MFBI may not have been burning coal as its primary energy source.

B. Based in information Union Carbide filed with FEA dated June 21, 1976 and other information available to FEA, the following plant equipment and facilities at Institute 12 would have to be acquired or refurbished in order for this MFBI to burn coal as its primary energy source:

1. Conveyors.
2. Crushers.
3. Feeders.
4. Soot Blowers.
5. Unloaders.
6. Special instrumentation and controls.
7. Ash handling and ponding equipment.

C. FEA proposes to find that on June 22, 1974, Institute 12 had all other significant plant equipment and facilities associated with the burning of coal.

D. Within the meaning of ESECA and the regulations promulgated pursuant thereto, the equipment and facilities listed in paragraph B, above, do not individually or in combination constitute a lack of capability and necessary plant equipment to burn coal as of June 22, 1974.

II. *The burning of coal in lieu of natural gas or petroleum products is practicable and consistent with the purposes of ESECA.*

FEA proposes to find that the burning of coal in lieu of petroleum products or natural gas at Institute 12 is practicable and consistent with the purposes of ESECA. This proposed finding is based upon an analysis by FEA of the fuel consumption of this boiler for the period 1973-1977, the remaining useful service life of the boiler after conversion, the net operating cost deferential that would result from compliance with a Prohibition Order, as well as the facts and interpretations reference below:

A. *The burning of coal is practicable.*—1. *Anticipated fuel supplies.—Curtailment of natural gas supply.* Based on information obtained from the Federal Power Commission, the natural gas supplier, and in certain cases the owner, FEA presumes that the MFBI will experience a substantial curtailment of its present supply of natural gas. This curtailment will result in increased reliance on alternate fuels in the future.

2. *Costs associated with burning coal.*—a. *Capital investment costs.* The total estimated initial capital investment costs, including financing costs, that would result from the acquisition and refurbishment of equipment and facilities associated with the burning of coal at Institute 12 have been determined.

This determination was based on existing FEA information and analysis as well as information filed with FEA by the owner. Approximate costs to comply with applicable environmental protection requirements have also been considered, including the cost of compliance with the air pollution control requirements of the Clean Air Act.

b. *Annual operating and maintenance costs.* The expected increase in operating and maintenance costs, exclusive of fuel costs, that would result from the burning of coal has been calculated based on information supplied by the owner or otherwise acquired by FEA.

c. *Fuel costs.* Based on an analysis of annual fuel consumption and fuel cost information supplied by the owner and/or, in appropriate circumstances, upon FEA's fuel cost estimates, FEA has determined that the burning of coal in lieu of natural gas or petroleum products at Institute 12 will result in a decrease in annual fuel costs.

d. *Net operating cost differential.* Based on the factors stated in paragraphs A.1.a.–c., above, as well as the expected remaining useful life of the boiler after conversion, FEA has determined that the net annual operating cost differential, hereafter "NOCD", (which represents the difference between operating the boiler with coal and alternate fuel(s) as its primary energy source), resulting from the conversion of Institute 12, will represent an annual cost increase of $208,000.

3. *Reasonableness of additional costs of burning coal.*—The following analysis of the costs of conversion provides the basis for deciding that compliance with the proposed order is not unreasonable.

By converting from burning natural gas to burning coal as the primary energy source the MFBI would experience a net annual operating cost increase, but would save a substantial amount of natural gas. This cost would only be incurred for a limited period because the MFBI will eventually experience a substantial curtailment of its supply of natural gas. If the Prohibition Order were not issued to the MFBI it could alternatively replace its current natural gas supply with either petroleum products or coal for the period following such substantial curtailment of its natural gas supply.

In the calculation of the NOCD, FEA has considered oil as a substitute fuel for curtailed natural gas. In calculating the NOCD, in those instances where the MFBI has experienced no curtailment of its natural gas supply, FEA considered the present fuel usage. The net annual operating cost increase for this MFBI resulting from operating on coal as the primary energy source, instead of petroleum products (and/or natural gas where applicable), will be approximately $208,000.

Although the use of the coal alternative, instead of potential petroleum products, could be expected to result in a net annual operating cost increase, FEA has determined that the prohibition of burning natural gas or petroleum products as the primary energy source at Institute 12 is not unreasonable. Burning of coal by the MFBI as its primary energy source instead of petroleum products would result in additional capital investment costs and annual operating and maintenance costs exclusive of fuel costs. Any additional conversion costs would, however, be mitigated by the savings in fuel costs inherent in burning coal. Notwithstanding the fact that the MFBI could experience annual savings in its total fuel costs should it convert to coal instead of converting to petroleum products, there would be a net increase in the costs to the MFBI.

Although conversion to the burning of coal instead of petroleum products would be expected to increase the costs incurred by Institute 12 by $208,000 per year, FEA proposes to find that such increased cost, per barrel of oil saved is not unreasonable given the purposes of ESECA. This determination is based on consideration of the substantial potential oil savings that would result from conversion to coal. The determination that the costs of burning coal instead of petroleum products would not be unreasonable is further supported by consideration of such costs in relation to the expected remaining useful life of the MFBI, the size and resources of the owner as examined in the following discussion of financial capability, and the nature of the expected operations of the MFBI.

The additional costs that would be incurred if FEA were to prohibit the burning of natural gas or petroleum products as the primary energy source at Institute 12 would only be incurred for a limited period of time. In view of the scarcity of national supplies of natural gas and the likelihood that Institute 12 will experience a substantial curtailment of its present natural gas supply in the future, FEA has determined that the cost of burning coal in lieu of natural gas is not unreasonable. (Final Report Oil and Gas Resources, Reserves, and Productive Capacities Volumes I and II, Federal Energy Administration, October 1975.)

4. *Financial capability of the owner.*—a. *Recovery of capital investment.* FEA proposes to find that compliance with a Prohibition Order by Institute 12 would be economically feasible. FEA's analysis took into consideration the financial capability of the owner and is based upon the owner's financial position as reported in the Dun and Bradstreet Reference Book (March 1977). Where necessary FEA performed an independent analysis of the owner's financial capability, considering such factors as the owner's current financial statement and the additional capital investment required for the owner to comply with this NOI and all other NOI's which are currently under consideration, as well as additional capital investment costs related to all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2 (a) and (c) of ESECA to MFBI's owned by Union Carbide. FEA related these additional capital investment costs to the total capitalization of Union Carbide and the remaining useful life after conversion of Institute 12.

FEA does not consider the effect of the added capital investment costs to represent an unreasonable burden given the financial capabilities of Union Carbide to assume such costs.

b. *Total annual costs associated with conversion.* The total estimated annual increase in costs (amortized increased capital investment costs and other costs, excluding fuel costs) associated with the burning of coal as opposed to natural gas attributable to compliance with this NOI and all other NOI's which are currently under consideration has been determined. FEA also took into consideration total annual costs resulting from compliance with all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders if any, issued to date under authority of Section 2(a) and (c) of ESECA to Union Carbide MFBI's.

Notwithstanding the potential offsetting value of fuel cost savings, attributable to compliance with this NOI and all other NOI's currently under consideration, Union Carbide's total annual costs after conversion will increase by $208,000.

B. *Consistency with the purposes of ESECA.*—Because the issuance of a Prohibition Order to Institute 12 will discourage the use of natural gas or petroleum products and encourage the increased use of coal, FEA proposes to conclude that this action would be consistent with the purpose of ESECA to provide a means to assist in meeting the essential needs of the United States for fuels.

On the basis of the environmental analysis which FEA is required to conduct prior to issuance of a Notice of Effectiveness of a Prohibition Order, as well as the necessity for this MFBI to comply with the Clean Air Act and other applicable environmental protection requirements, FEA proposes to conclude that a Prohibition Order to Institute 12 would be consistent with the purpose of ESECA to provide for a means to assist in meeting the essential needs of the United States for fuels in a manner which is consistent, to the fullest extent practicable, with existing national commitments to protect and improve the environment.

III. *Coal and coal transportation facilities will be available to this MFBI during the period until December 31, 1984*

A. *Coal availability*—1. *National coal reserves.* United States coal reserves are more than sufficient to supply national needs for the foreseeable future. U.S. Department of the Interior, Bureau of Mines (BOM) data show a demonstrated coal reserve base of over 400 billion tons, over half of which is currently technically and economically recoverable (Demonstrated Coal Reserve Base of the United States, by Sulfur Category, on January 1, 1974, Bureau of Mines (May 1975) (hereafter "BOM Survey")). Within these recoverable reserves approximately 200 billion tons contain 1% or less sulfur by weight.

To determine when certain quantities of these reserves are expected to be available, FEA has examined several studies referenced herein, which together provide the best current evidence as to coal availability for the period ending December 31, 1984.

2. *National coal production and demand.*—The comparison, stated below, of estimated national coal production, national coal demand, and the total tonnage of uncommitted planned national coal production (derived from responses to a survey of coal producing companies) shows that there should be sufficient production of coal to meet the total national demand through 1980. Beyon 1980, plans for new production are not yet fully developed because few coal producers have firm expansion plans that extend that far into the future; however, the projected total planned national coal production for 1985 already meets 90 percent of the total U.S. demand expected in 1985. With time, more potential mine developments will become firm plans, thus increasing the planned production.

a. *National coal production.* It is conservatively estimated that it will be practicable to produce coal nationally in at least the following quantities:

Year:	Production potential (million tons)
1977	732.3
1978	791.6
1979	851.4
1980	911.7
1981	960.0
1982	994.3
1983	1,017.4
1984	1,028.7
1985	1,029.6

The figures shown above are derived from FEA's "Coal Mine Expansion Study" (May 1976). This study demonstrates that most coal producers did not have firm or accurate plans for new capacity additions beyond 1980. The 1985 production, therefore, tends to underestimate actual production potential.

An FEA study, "Coal Availability Report, April 1977" (hereafter "Availability Report"), indicates current plans for nationwide production of uncommitted coal as follows:

Year:	Production (million tons)
1978	124.3
1979	243.1
1980	293.3
1981	350.0
1982	369.9
1983	396.2
1984	475.5
1985	544.9

b. *National demand exclusive of ESECA prohibition order demand.* The estimated national demand, excluding any increased demand resulting from FEA action under the authority of Section 2(a) of ESECA, is as follows (FEA 1976 National Energy Outlook):

Year:	Demand (million tons)
1978	730
1979	764
1980	799
1981	842
1982	887
1983	935
1984	985
1985	1,040

c. *National ESECA prohibition order demand.* The estimated potential demand for coal resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA is no more than the following ("Availability Report"):

Year:	Demand (million tons)
1978	11.0
1979	22.4
1980	32.5
1981	35.8
1982	57.4
1983	59.8
1984	59.8

3. *Characteristic coal production and demand.*—FEA's "Availability Report" identifies coal of specific quality characteristics available for use at this MFBI. The survey is based on data from 31 mining companies that supplied useful information on 96 mining units. Responses from these companies identified planned production of coal which is not committed to a specific buyer. For those companies which did not respond to the survey, FEA estimated their uncommitted planned production based on their 1974 production.

a. *Characteristic coal requirements for this MFBI.*—FEA's "Availability Report" has determined that a boiler, of the type used at Institute 12, will be able to burn coal of the following characteristics and comply with all applicable air pollution control requirements.

Btu's/lb.	[1] 10,000
Moisture (percent)	[2] 15
Ash (percent)	[2] 20
Volatile (percent)	[1] 15
Ash softening temp. (°F)	[1] 2,200
Sulfur (approximately) (percent)	[2] 1.1

[1] Minimum.
[2] Maximum.

b. *Characteristic coal demand from this MFBI.* The potential demand for coal, of the type described above, which would result from this NOI is estimated to be as follows:

	Demand (thousand tons)
Year: 1978 and thereafter	95

c. *National planned production, characteristic coal.* FEAs "Availability Report" has determined that coal of the type described in paragraph A.3.a., above, is uncommitted to a specific buyer and will be potentially available to this MFBI in a nationwide market as follows:

Year:	Production (thousand tons)
1978	61,390
1979	112,998
1980	141,696
1981	169,688
1982	179,742
1983	193,201
1984	228,474

d. *National ESECA prohibition order demand for coal, regardless of characteristics.* The national planned production of characteristic coal, as stated in paragraph A.3.c., above, exceeds potential demand for coal regardless of characteristic expected from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. National ESECA Prohibition Order demand as previously stated in paragraph A.2.c., above, is no more than the following ("Availability Report"):

Year:	Demand (thousand tons)
1978	11,032
1979	22,434
1980	32,483
1981	35,755
1982	57,362
1983	59,815
1984	59,815

e. *Regional planned production, characteristic coal.* Coal with the characteristics described in paragraph A.3.a., above, is uncommitted and will be potentially available to this MFBI (in a probable regional supply/demand relationship related to the location of this MFBI) from BOM Districts 7, 8 and 13 as follows ("Availability Report"):

Year:	Production (thousand tons)
1978	23,720
1979	41,682
1980	46,902
1981	54,781
1982	58,159
1983	62,984
1984	72,417

f. *Regional ESECA prohibition order demand for coal, regardless of characteristic.* The expected regional production of characteristic coal, as stated in paragraph A.3.e.

above, exceeds the potential demand for coal regardless of characteristic from BOM Districts 7, 8 and 13 expected to this NOI, from all other Notices of Intention to result from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. This potential regional demand is estimated in FEA's "Availability Report" to be no more than the following:

Year:	*Demand (thousand tons)*
1978	8,268
1979	9,149
1980	16,771
1981	18,005
1982	23,682
1983	24,095
1984	24,095

g. *Regional ESECA prohibition order demand for coal by sulfur characteristic.* The potential regional demand for coal from BOM Districts 7, 8 and 13 with a 0.61–1.4% sulfur content (which includes the 1.1% maximum sulfur content described in paragraph A.3.a., above) resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under the authority of Section 2(a) of ESECA is estimated in FEA's "Availability Report" to be no more than the following:

Year:	*Demand (thousand tons) Percent sulfur 0.61 to 1.4*
1978	2,831
1979	5,578
1980	9,839
1981	11,028
1982	16,292
1983	16,292
1984	16,292

The regional planned production of coal stated in paragraph A.3.e., above, with the characteristics described in paragraph A.3.a., above, far exceeds this potential ESECA regional demand for coal by sulfur characteristic.

4. *State or local laws.*—FEA has found no state or local laws or policies limiting the extraction or utilization of coal that would adversely affect these production figures, and none have been brought to FEA's attention.

5. *Conclusion.*—FEA's "Availability Report" has identified nationally and in BOM Districts 7, 8 and 13 uncommitted coal production that meets the requirements of Institute 12 as described in paragraph A.3.a., above. FEA proposes to find that this uncommitted coal exists in amounts sufficient in any year to meet the estimated additional demand for coal, both nationally and from these Districts, resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA.

Coal for this MFBI will probably be bought from producers according to regional supply/demand relationships related to the MFBI's location from BOM Districts 7, 8 and 13. FEA observes however, that the MFBI could purchase coal in other markets as such production becomes available. (The Feasibility of Considering Expanded Use of Western Coal by Midwestern and Eastern Utilities in the Period 1978 and Beyond, School of Engineering, University of Pennsylvania, November 7, 1975.)

B. *Coal transportation*—1. *Location of MFBI and coal supply.* Based on an FEA study, Coal Transportation Availability Report, April 1977 (hereafter "Transportation Availability Report"), coal for Institute 12 would probably come from BOM District 8 as the primary supply area and as the alternate supply area. While this supply region is among the nearest available source able to supply complying coal to the plant, complying coal could be transferred by rail from other identified sources within the United States as well. The analysis of transportation availability is based on the most likely route as well as two alternates routes. These routes were chosen to demonstrate transportation availability.

2. *Route of coal shipment.*—The primary route for coal delivery for Institute 12 is to originate coal in District 8 near Lexington, Kentucky, on the Chesapeake and Ohio Railway Co. (Chessie System) which would move it to Institute 12 via Huntington and Charleston, West Virginia. Total rail distance is approximately 172 miles. The alternate route from the primary supply area originates coal in the Corbin, Kentucky area on the Louisville and Nashville (L&N) which moves it to Lexington, Kentucky, where the Chessie System picks it up to deliver to Institute 12. Total rail distance is about 263 miles.

An alternate route from the alternate supply area is to originate coal BOM District 8 in the Whitesville, West Virginia area on the Chesapeake and Ohio line, which would deliver coal to Institute 12. Total rail distance is about 45 miles.

3. *Originating trunk carrier.*—The Chessie System, originating carrier of coal for Institute 12 has about 76,000 hopper cars with an average capacity of 77 tons. Using an average number of deliveries of 20 per year, per 77 ton car, the Chessie System may need as many as 196 additional cars starting in 1980 to handle the increased demand from Institute 12. This estimate assumes that the railroad would neither have excess originating capacity nor obtain cars from other carriers in the originating vicinity.

"FEA's Transportation Availability Report" concluded that for all potential Prohibition Order candidates studied, there would be no major constraints in transporting coal. This study examined existing rail transportation car capacity, water transportation capacity, including unloading docks, where applicable, and took into account projections made by all carriers to meet the anticipated demand for all types of transportation facilities assuming all MFBI's studied were to receive orders under Section 2(a) of ESECA.

FEA has not found nor has it been informed of any apparent constraints to carrying coal for any alternate or intermediate carriers should they be used.

4. *Destination carrier and MFBI facilities.*—Institute 12 has indicated that coal has been delivered to it in the past by the Chessie System.

There are no other obstacles to the delivery of coal to Institute 12.

5. *Conclusion.*—Coal transportation facilities will be available for the period a Prohibition Order is expected to be in effect since no major constraints to coal delivery over the primary route to Institute 12 presently exist, and alternate routes are available.

APPENDIX [1]

PROPOSED FINDINGS AND RATIONALE FOR NOTICE OF INTENTION TO ISSUE A PROHIBITION ORDER

ESECA and the FEA regulations require FEA to make certain findings before issuing a Prohibition Order to a major fuel burning installation (MFBI). FEA's proposed findings are set out below with respect to the MFBI's named below. Supporting rationale and conclusions are also set forth.

[1] Attached to this Appendix is FEA's MFBI Prohibition Order Candidate Identification and Selection Methodology.

Docket No.	Owner	Installation	Unit No.	Location
OCU-2776	Scott Paper Co.	Chester Plant	8, 9	Chester, Pa.

These findings, which are now proposed by FEA, are based on the information that has been provided to and developed by FEA prior to the issuance of this Notice of Intention (NOI) to issue a Prohibition Order.

Scott Paper Company shall be referred to as the "owner" and as "Scott Paper." Chester Plant Units 8 and 9 shall be referred to as the "MFBI's" and as "Chester 8 and 9".

I. *Capability and necessary plant equipment to burn coal.*

FEA proposes to find that on June 22, 1974, Chester 8 and 9 had the capability and necessary plant equipment to burn coal. This proposed finding is based on the facts and interpretations stated below:

A. Scott Paper, in a Major Fuel Burning Installation Coal Conversion Report, Section II, Questions 6, and 12–14, (Form FEA C–602–S–0), filed on June 13, 1975, indicated that each MFBI had in place on June 22, 1974, a boiler that was capable of burning coal. The boilers had been designed and constructed or modified to burn coal as their primary energy source, notwithstanding the fact that on June 22, 1974, the MFBI's may have been burning coal as their primary energy source.

B. Based on information Scott Paper filed with FEA dated July 22, 1976, and other information available to FEA, the following plant equipment and facilities at Chester 8 and 9 would have to be acquired or refurbished in order for these MFBI's to burn coal as their primary energy source:

1. Unloaders.
2. Conveyors.
3. Scales and feeders.
4. Silos.
5. Pulverizers.
6. Combustors.
7. Soot blowers.
8. Special instrumentation.
9. Waste water treatment equipment.
10. Ash handling and ponding equipment.

C. FEA proposes to find that on June 22, 1974, Chester 8 and 9 had all other significant plant equipment and facilities associated with the burning of coal.

D. Within the meaning of ESECA and the regulations promulgated pursuant thereto, the equipment and facilities listed in paragraph B, above, do not individually or in combination constitute a lack of capability and necessary plant equipment to burn coal, as of June 22, 1974.

II. *The burning of coal in lieu of natural gas or petroleum products is practicable and consistent with the purposes of ESECA.*

FEA proposes to find that the burning of coal in lieu of petroleum products or natural gas at Chester 8 and 9 is practicable and consistent with the purposes of ESECA. This proposed finding is based upon an analysis by FEA of the fuel consumption of these boilers for the period 1973–1976, the remaining useful service life of each boiler after conversion, the net operating cost differential that would result from compliance

with a Prohibition Order, as well as the facts and interpretations referenced below:

A. *The burning of coal is practicable*—1. *Costs associated with burning coal.*—a. *Capital investment costs.* The total estimated initial capital investment costs including financing costs, that would result from the acquisition and refurbishment of equipment and facilities associated with the burning of coal at Chester 8 and 9 have been determined.

This determination was based on existing FEA information and analysis as well as information filed with FEA by the owner. Approximate costs to comply with applicable environmental protection requirements have also been considered, including the cost of compliance with the air pollution control requirements of the Clean Air Act.

b. *Annual operating and maintenance costs.* The expected increase in operating and maintenance costs, exclusive of fuel costs, that would result from the burning of coal has been calculated based on Information supplied by the owner or otherwise acquired by FEA.

c. *Fuel costs.* Based on an analysis of annual fuel consumption and fuel cost information supplied by the owner and/or, in appropriate circumstances, upon FEA's fuel cost estimates, FEA has determined that the burning of coal in lieu of natural gas or petroleum products at Chester 8 and 9 will result in a decrease in annual fuel costs.

d. *Net operating cost differential.* Based on the factors stated in paragraphs A.1.a.–c., above, as well as the expected remaining useful life of the boilers after conversion, FEA has determined that the net annual operating cost differential (which represents the difference between operating the boilers with coal and alternate fuel(s) as their primary energy source), resulting from the conversion of Chester 8 and 9 will represent an annual cost increase of $478,000.

2. *Reasonableness of costs of conversion.*—The foregoing analysis of the costs of conversion provided the basis for deciding whether the conversion of Chester 8 and 9 is reasonable.

As a result of conversion, Scott Paper will incur additional capital investment costs, including financing costs, and additional annual operating and maintenance costs, exclusive of fuel costs, but will experience an annual savings in its total fuel costs for the expected remaining useful service life of the boilers after conversion.

Increased costs of conversion will be mitigated by the decrease in fuel costs. The net result, however, will be an increase in the annual cost of operating the boilers.

The use of coal at Chester 8 and 9 will result in a substantial annual savings of barrels of oil that otherwise would be used as a boiler fuel. Although conversion to the burning of coal would be expected to increase the cost of operating at Chester 8 and 9, FEA proposes to find that such increased cost per barrel of oil saved is not unreasonable. This determination is based on consideration of the substantial savings of oil that will result from this conversion. The determination that the costs of converting are not unreasonable is further supported by consideration of such costs in relation to the expected remaining useful life of the boilers after conversion, the size and resources of Scott Paper as examined in the following analysis of financial capability, the nature of the expected operation of these boilers, and potential future increases in the fuel cost differential in favor of coal.

3. *Financial capability of the owner*—a. *Recovery of capital investment.* FEA proposes to find that compliance with a Prohibition Order by Chester 8 and 9 would be economically feasible. FEA's analysis took into consideration the financial capability of the owner and is based upon the owner's financial position as reported in the Dun and Bradstreet Reference Book (March 1977). Where necessary, FEA performed an independent analysis of the owner's financial capability, considering such factors as the owner's current financial statement and the additional capital investment required for the owner to comply with this NOI and all other NOI's which are currently under consideration, as well as additional capital investment costs related to all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2 (a) and (c) of ESECA to MFBI's owned by Scott Paper. FEA related these additional capital investment costs to the total capitalization of Scott Paper and the remaining useful life after conversion of Chester 8 and 9.

FEA does not consider the effect of the added capital investment costs to represent an unreasonable burden given the financial capabilities of Scott Paper to assume such costs.

b. *Total annual costs associated with conversion.* The total estimated annual increase in costs (amortized increased capital investment costs and other costs, exclusive of fuel costs) associated with the burning of coal as opposed to oil attributable to compliance with this NOI and all other NOI's which are currently under consideration has been determined. FEA also took into consideration total annual costs resulting from compliance with all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2 (a) and (c) of ESECA to Scott Paper MFBI's.

Notwithstanding the potential offsetting aggregate value of fuel cost savings attributable to compliance with this NOI and all other NOI's currently under consideration, Scott Paper's total annual costs after conversion will increase by $622,998.

B. *Consistency with the purposes of ESECA.*—Because the issuance of a Prohibition Order to Chester 8 and 9 will discourage the use of natural gas or petroleum products and encourage the increased use of coal, FEA proposes to conclude that this action would be consistent with the purpose of ESECA to provide a means to assist in meeting the essential needs of the United States for fuels.

On the basis of the environmental analysis which FEA is required to conduct prior to issuance of a Notice of Effectiveness of a Prohibition Order, as well as the necessity for these MFBI's to comply with the Clean Air Act and other applicable environmental protection requirements, FEA proposes to conclude that a Prohibition Order to Chester 8 and 9 would be consistent with the purpose of ESECA to provide for a means to assist in meeting the essential needs of the United States for fuels in a manner which is consistent, to the fullest extent practicable, with existing national commitments to protect and improve the environment.

III. *Coal and coal transportation facilities will be available to these MFBI's during the period until December 31, 1984.*

A. *Coal availability*—1. *National coal reserves.* United States coal reserves are more than sufficient to supply national needs for the foreseeable future. U.S. Department of the Interior, Bureau of Mines (BOM) data show a demonstrated coal reserve base of over 400 billion tons, over half of which is currently technically and economically recoverable (Demonstrated Coal Reserve Base of the United States, by Sulfur Category, on January 1, 1974, Bureau of Mines (May 1975) [hereafter "BOM Survey"]). Within these recoverable reserves approximately 200 billion tons contain 1% or less sulfur by weight. To determine when certain quantities of these reserves are expected to be available, FEA has examined several studies referenced herein, which togther provide the best current evidence as to coal availability for the period ending December 31, 1984.

2. *National coal production and demand.*—The comparison, stated below, of estimated national coal production, national coal demand, and the total tonnage of uncommitted planned national coal production (derived from responses to a survey of coal producing companies) shows that there should be sufficient production of coal to meet the total national demand through 1980. Beyond 1980, plans for new production are not yet fully developed because few coal producers have firm expansion plans that extend that far into the future; however, the projected total planned national coal production for 1985 already meets 99% of the total U.S. demand expected in 1985. With time, more potential mine developments will become firm plans, thus increasing the planned production.

a. *National coal production.* It is conservatively estimated that it will be practicable to produce coal nationally in at least the following quantities:

Year:	*Production potential (million tons)*
1977	732.3
1978	791.6
1979	851.4
1980	911.7
1981	960.0
1982	994.3
1983	1,017.4
1984	1,028.7
1985	1,029.6

The figures shown above are derived from FEA's Coal Mine Expansion Study (May 1976). This study demonstrates that most coal producers did not have firm or accurate plans for new capacity additions beyond 1980. The 1985 projection therefore tends to underestimate actual production potential.

An FEA study, Coal Availability Report, April 1977 (hereinafter "Availability Report"), indicates current plans for nationwide production of uncommitted coal as follows:

Year:	*Production (million tons)*
1978	124.3
1979	243.1
1980	293.3
1981	350.0
1982	369.9
1983	396.2
1984	475.5
1985	544.9

b. *National demand exclusive of ESECA prohibition order demand.* The estimated national demand, excluding any increased demand resulting from FEA action under the authority of Section 2(a) or ESECA, is as follows (FEA 1976 National Energy Outlook):

Year:	*Demand (million tons)*
1978	730
1979	764
1980	799
1981	842
1982	887
1983	935
1984	985
1985	1,040

c. *National ESECA prohibition order demand.* The estimated potential demand for coal resulting from this NOI, from all other

Notices of Intention to issued Prohibition Orders to date under authority of Section 2(a) of ESECA is no more than the following ("Availability Report"):

Year:	Demand (million tons)
1978	11.0
1979	22.4
1980	32.5
1981	35.8
1982	57.4
1983	59.8
1984	59.8

3. *Characteristic coal production and demand.*—FEA's "Availability Report" identifies coal of specific quality characteristics available for use at these MFBI's. The survey is based on data from 31 mining companies that supplied useful information on 96 mining units. Responses from these companies identified planned production of coal which is not now committed to a specific buyer. For those companies which did not respond to the survey, FEA estimated their uncommitted planned production based on their 1974 production.

a. *Characteristics coal requirements for these MFBI's.* FEA's "Availability Report" has determined that boilers, of the type used at Chester 8 and 9 will be able to burn coal of the following characteristics and comply with all applicable air pollution control requirements.

Btu's/lb	[1] 10,000
Moisture (percent)	[2] 15
Ash (percent)	[2] 20
Volatile (percent)	[1] 15
Ash softening temp. (° F)	[1] 2,200
Sulfur (approximately) (percent	[2] .5

[1] Minimum.
[2] Maximum.

b. *Characteristic coal demand from these MFBI's.* The potential demand for coal, of the type described above, which would result from this NOI is estimated to be as follows:

Year:	Demand (thousand tons)
Year: 1980 and thereafter	93

c. *National planned production, characteristic coal.* FEA's "Availability Report" has determined that coal of the type described in paragraph A.3.a., above, is uncommitted to a specific buyer and will be potentially available to these MFBI's in a nation-wide market as follows:

Year:	Production (thousand tons)
1978	27,235
1979	46,396
1980	59,975
1981	72,159
1982	77,998
1983	85,538
1984	99,731

d. *National ESECA prohibition order demand for coal, regardless of characteristics.* The national planned production of characteristic coal, as stated in paragraph A.3.c., above, exceeds potential demand for coal regardless of characteristic expected from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. National ESECA Prohibition Order demand as previously stated in paragraph A.3.c., above is no more than the following ("Availability Report"):

Year:	Demand (thousand tons)
1978	11,032
1979	22,434
1980	32,483
1981	35,755
1982	57,362
1983	59,815
1984	59,815

e. *Regional planned production, characteristic coal.* Coal with the characteristics described in paragraph A.3.a., above, is uncommitted and will be potentially available to these MFBI's (in a probable regional supply/demand relationship related to the location of these MFBI's) from BOM Districts 7, 8 and 13 as follows ("Availability Report"):

Year:	Production (thousand tons)
1978	2,273
1979	4,624
1980	5,120
1981	6,174
1982	6,527
1983	6,989
1984	8,596

f. *Regional ESECA prohibition order demand for coal, regardless of characteristic.* The expected regional production of characteristic coal, as stated in paragraph A.3.e., above, exceeds the potential demand for coal regardless of characteristic from BOM Districts 7, 8, and 13 expected to result from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. This potential regional demand is estimated in FEA's "Availability Report" to be no more than the following:

Year:	Demand (thousand tons)
1978	3,268
1979	9,149
1980	16,321
1981	18,005
1982	23,682
1983	24,095
1984	24,095

g. *Regional ESECA prohibition order demand for coal by sulfur characteristic.* The potential regional demand for coal from BOM Districts 7, 8 and 13 with a 0.4 to 0.6% sulfur content (which includes the 0.5% maximum sulfur content described in paragraph A.3.a., above) resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA is estimated in FEA's "Availability Report" to be no more than the following:

Year:	Demand (thousand tons) percent sulfur 0.4 to 0.6
1978	73
1979	982
1980	2,389
1981	2,883
1982	3,296
1983	3,709
1984	3,709

The regional planned production of coal stated in paragraph A.3.e., above, with the characteristics described in paragraph A.3.a., above, exceeds this potential ESECA regional demand for coal by sulfur characteristic.

4. *State or local laws.*—FEA has found no state or local laws or policies limiting the extraction or utilization of coal that would adversely affect these production figures, and none have been brought to FEA's attention.

5. *Conclusion.*—FEA's "Availability Report" has identified nationally and in BOM Districts 7, 8 and 13 uncommitted coal production that meets the requirements of Chester 8 and 9 as described in paragraph A.3.a., above. FEA proposes to find that this uncommitted coal exists in amounts sufficient in any year to meet the estimated additional demand for coal, both nationally and from these Districts, resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA.

Coal for these MFBI's will probably be bought from producers according to regional supply/demand relationships related to the MFBI's location from BOM Districts 7, 8 and 13. FEA observes, however, that the MFBI's could purchase coal in other markets as such production becomes available. (The feasibility of Considering Expanded Use of Western Coal by Midwestern and Eastern Utilities in the Period 1978 and Beyond, School of Engineering, University of Pennsylvania, November 7, 1975.)

B. *Coal transportation.*—1. *Location of MFBI's and coal supply.* Based on an FEA study, Coal Transportation Availability Report, April 1977, (hereafter "Transportation Availability Report") coal for Chester 8 and 9 would probably come from BOM District 8 as both the primary and alternate source of supply. While this supply region is the nearest available source able to supply complying coal to the plant, complying coal could be transferred by rail from other identified sources within the United States as well. The analysis of transportation availability is based on the most likely route as well as two alternate routes. These routes were chosen to demonstrate transportation availability.

2. *Route of coal shipment.*—The primary route for coal delivery for Chester 8 and 9 is to originate coal in BOM District 8 near Hazard, Kentucky on the Louisville and Nashville (L&N) Railroad which would move it to Lexington, Kentucky. The Chesapeake and Ohio and Baltimore and Ohio (Chessie System) would then move it via Charleston, West Virginia and Baltimore, Maryland to Chester, Pennsylvania. The total rail distance is about 610 miles.

The alternate route from the primary source is to originate coal near Prestonburg, Kentucky on the Chessie System which would move it via Huntington, West Virginia to Pittsburgh, Pennsylvania. Consolidated Railroad would then move it to Chester, Pennsylvania. The total rail distance is about 705 miles.

An alternate route from the alternate supply area would originate coal in BOM District 8 on the Chesapeake and Ohio line near Charleston, West Virginia, which would haul it to Washington, D.C. Conrail would then move the coal to Chester, Pennsylvania. Total rail distance is about 505 miles.

3. *Originating trunk carrier.*—The L&N, originating carrier of coal for Chester 8 and 9 has about 34,000 hopper cars with an estimated average capacity of 75 tons per car. Using an average number of 20 deliveries per year per 75-ton car, the L&N may need as many as 79 additional cars by 1980 to handle the increased demand from Chester 8 and 9. This estimate assumes that the railroad would neither have excess originating capacity nor obtain cars from other carriers in the originating vicinity.

FEA's "Transportation Availability Report" concluded that for all potential Prohibition

Order candidates studied, there would be no major constraints in transporting coal. This study examined existing rail transportation car capacity, water transportation capacity, including unloading docks, where applicable, and took into account projections made by all types of transportation facilities assuming all MFBI's studied were to receive orders under Section 2(a) of ESECA.

The L&N indicated that transportation facilities at nine sites within BOM District 8 served by the L&N are in good condition and that loading facilities could handle the required coal volumes.

FEA has not found nor has it been informed of any apparent constraints to carrying coal for any alternate or intermediate carriers should they be used.

4. *Destination carrier and plant facilities.*—Freight service to Chester 8 and 9 is provided by Conrail and the Chessie System as illustrated above. This plant used coal as a boiler fuel until the early 1950's, but unloading, handling, and storage facilities would need to be reinstalled. It is expected that this installation can be accomplished prior to the effective date for coal burning.

There are no other obstacles to the delivery of coal to Chester 8 and 9.

5. *Conclusion.*—Coal transportation facilities will be available for the period a Prohibition Order is expected to be in effect since no major constraints to coal delivery over the primary route to Chester 8 and 9 presently exist, and alternate routes are available.

APPENDIX

PROPOSED FINDINGS AND RATIONALE FOR NOTICE OF INTENTION TO ISSUE A PROHIBITION ORDER

ESECA and the FEA regulations require FEA to make certain findings before issuing a Prohibition Order to a major fuel burning installation (MFBI). FEA's proposed findings are set out below with respect to the MFBI's named below. Supporting rationale and conclusions are also set forth.

Docket No.	Owner	Installation	Unit No.	Location
OCU-2839	FMC Corp.	Fredericksburg Plant	58, 59, 60, 61, 62	Fredericksburg, Va.

These findings, which are now proposed by FEA, are based on the information that has been provided to and developed by FEA prior to the issuance of this Notice of Intention (NOI) to issue a Prohibition Order.

FMC Corporation shall be referred to as the "owner" and as "FMC". Fredericksburg Plant Units 58, 59, 60, 61 and 62 shall be referred to as the "MFBI's" and as "Fredericksburg 58, 59, 60, 61 and 62".

I. *Capability and necessary plant equipment to burn coal.*

FEA proposes to find that on June 22, 1974, Fredericksburg 58, 59, 60, 61 and 62 had the capability and necessary plant equipment to burn coal. This proposed finding is based on the facts and interpretations stated below:

A. FMC, in a Major Fuel Burning Installation Coal Conversion Report, Section II, Questions 6, and 12–14, (Form FEA C–602–S–0), filed on May 30, 1975, indicated that each MFBI had in place on June 22, 1974, a boiler that was capable of burning coal. The boilers had been designed and constructed or modified to burn coal as their primary energy source, notwithstanding the fact that on June 22, 1974, the MFBI's may not have been burning coal as their primary energy source.

B. Based on information FMC filed with FEA dated July 21, 1976, and other information available to FEA, the following plant equipment and facilities at Fredericksburg 58, 59, 60, 61 and 62 would have to be acquired or refurbished in order for these MFBI's to burn coal as their primary energy source:

1. Coal handling equipment.
2. Ash handling equipment and ponding facilities.
3. Stokers.
4. Soot blowers.

C. FEA proposes to find that on June 22, 1974, Fredericksburg 58, 59, 60, 61 and 62 had all other significant plant equipment and facilities associated with the burning of coal.

D. Within the meaning of ESECA and the regulations promulgated pursuant thereto, the equipment and facilities listed in paragraph B, above, do not individually or in combination constitute a lack of capability and necessary plant equipment to burn coal, as of June 22, 1974.

II. *The burning of coal in lieu of natural gas or petroleum products is practicable and consistent with the purposes of ESECA.*

FEA proposes to find that the burning of coal in lieu of petroleum products or natural gas at Fredericksburg 58, 59, 60, 61, and 62 is practicable and consistent with the purposes of ESECA. This proposed finding is based upon an analysis by FEA of the fuel consumption of these boilers for the period 1973–1976, the remaining useful service life of each boiler after conversion, the net operating cost differential that would result from compliance with a Prohibition Order, as well as the facts and interpretations referenced below:

A. *The burning of coal is practicable.*—1. *Costs associated with burning coal.*—a. *Capital investment costs.* The total estimated initial capital investment costs, including financing costs, that would result from the acquisition and refurbishment of equipment and facilities associated with the burning of coal at Fredericksburg 58, 59, 60, 61 and 62 have been determined. This determination was based on existing FEA information and analysis as well as information filed with FEA by the owner. Approximate costs to comply with applicable environmental protection requirements have also been considered, including the cost of compliance with the air pollution control requirements of the Clean Air Act.

b. *Annual operating and maintenance costs.* The expected increase in operating and maintenance costs, exclusive of fuel costs, that would result from the burning of coal has been calculated based on information supplied by the owner or otherwise acquired by FEA.

c. *Fuel costs.* Based on an analysis of annual fuel consumption and fuel cost information supplied by the owner and/or, in appropriate circumstances, upon FEA's fuel cost estimates, FEA has determined that the burning of coal in lieu of natural gas or petroleum products at Fredericksburg 58, 59, 60, 61 and 62 will result in a decrease in annual fuel costs.

d. *Net operating cost differential.* Based on the factors stated in paragraphs A.1. a.–c., above, as well as the expected remaining useful life of the boilers after conversion, FEA has determined that the net annual operating cost differential (which represents the difference between operating the boilers with coal and alternate fuel(s) as their primary energy source), resulting from the conversion of Fredericksburg 58, 59, 60, 61 and 62, will represent an annual savings.

2. *Reasonableness of costs of conversion.*—The foregoing analysis of the costs of conversion provided the basis for deciding whether the conversion of Fredericksburg 58, 59, 60, 61 and 62 is reasonable.

As a result of conversion, FMC will incur additional capital investment costs, including financing costs, and additional annual operating and maintenance costs, exclusive of fuel costs, but will experience an annual savings in its total fuel costs for the expected remaining useful service life of the boilers after conversion.

Since all increased costs of conversion will be offset by the decrease in fuel costs, a net decrease in the annual cost of operation of the boilers should result.

The use of coal at Fredericksburg 58, 59, 60, 61 and 62 will result in a substantial annual savings of barrels of oil that otherwise would be used as a boiler fuel.

FEA proposes to find that, since the increased capital investment costs and operating and maintenance costs at Fredericksburg 58, 59, 60, 61 and 62 are totally offset by the current fuel cost differential between oil and coal burning at Fredericksburg 58, 59, 60, 61 and 62, and potential future increases in the fuel cost differential in favor of coal, the additional costs associated with burning coal are reasonable.

3. *Financial capability of the owner.*—a. *Recovery of capital investment.* FEA proposes to find that compliance with a Prohibition Order by Fredericksburg 58, 59, 60, 61 and 62 would be economically feasible. FEA's analysis took into consideration the financial capability of the owner and is based upon the owner's financial position as reported in the Dun and Bradstreet Reference Book March 1977. Where necessary, FEA performed an independent analysis of the owner's financial capability, considering such factors as the owner's current financial statement and the additional capital investment required for the owner to comply with this NOI and all other NOI's which are currently under consideration, as well as additional capital investment costs related to all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Sections 2 (a) and (c) of ESECA to MFBI's owned by FMC. FEA related these additional capital investment costs to the total capitalization of FMC and the remaining useful life after conversion of Fredericksburg 58, 59, 60, 61 and 62.

FEA does not consider the effect of the added capital investment costs to represent an unreasonable burden given the financial capabilities of FMC to assume such costs.

b. *Total annual costs associated with conversion.* The total estimated annual increase in costs (amortized increased capital investment costs and other costs, exclusive of fuel costs) associated with the burning of coal as opposed to oil attributable to compliance with this NOI and all other NOI's which are currently under consideration has been determined. FEA also took into consideration total annual costs resulting from compliance with all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Sections 2 (a) and (c) of ESECA to FMC MFBI's.

However, due to the potential offsetting value of fuel cost savings attributable to

compliance with this NOI and all other NOI's currently under consideration, FMC's total annual costs after conversion should decrease.

B. *Consistency with the purposes of ESECA.*—Because the issuance of a Prohibition Order to Fredericksburg 58, 59, 60, 61 and 62 will discourage the use of natural gas or petroleum products and encourage the increased use of coal, FEA proposes to conclude that this action would be consistent with the purpose of ESECA to provide a means to assist in meeting the essential needs of the United States for fuels.

On the basis of the environmental analysis which FEA is required to conduct prior issuance of a Notice of Effectiveness of a Prohibition Order, as well as the necessity for these MFBI's to comply with the Clean Air Act and other applicable environmental protection requirements, FEA proposes to conclude that a Prohibition Order to Fredericksburg 58, 59, 60, 61 and 62 would be consistent with the purposes of ESECA to provide for a means to assist in meeting the essential needs of the United States for fuels in a manner which is consistent, to the fullest extent practicable, with existing national commitments to protect and improve the environment.

III. *Coal and coal transportation facilities will be available to these MFBI's during the period until December 31, 1984.*

A. *Coal availability.*—1. *National coal reserves.*—United States coal reserves are more than sufficient to supply national needs for the foreseeable future. U.S. Department of the Interior, Bureau of Mines (BOM) data show a demonstrated coal reserve base of over 400 billion tons, over half of which is currently technically and economically recoverable (Demonstrated Coal Reserve Base of the United States, by Sulfur Category, on January 1, 1974, Bureau of Mines (May 1975) [hereafter "BOM Survey"]). Within these recoverable reserves approximately 200 billion tons contain 1% or less sulfur by weight. To determine when certain quantities of these reserves are expected to be available, FEA has examined several studies referenced herein, which together provide the best current evidence as to coal availability for the period ending December 31, 1984.

2. *National coal production and demand.*—The comparison, stated below, of estimated national coal production, national coal demand, and the total tonnage of uncommitted planned national coal production (derived from responses to a survey of coal producing companies) shows that there should be sufficient produtcion of coal to meet the total national demand through 1980. Beyond 1980, plans for new production are not yet fully developed because few coal producers have firm expansion plans that extend that far into the future; however, the projected total planned national coal production for 1985 already meets 99% of the total U.S. demand expected in 1985. With time, more potential mine developments will become firm plans, thus increasing the planned production.

a. *National coal production.* It is conservatively estimated that it will be practicable to produce coal nationally in at least the following quantities:

Year:	*Production potential (million tons)*
1977	732.3
1978	791.6
1979	851.4
1980	911.7
1981	960.0
1982	994.3
1983	1,017.4
1984	1,028.7
1985	1,029.6

The figures shown above are derived from FEA's Coal Mine Expansion Study (May 1976). This study demonstrates that most coal producers did not have firm or accurate plans for new capacity additions beyond 1980. The 1985 projection, therefore, tends to underestimate actual production potential.

An FEA study, Coal Availability Report, April 1977 (hereafter "Availability Report"), indicates current plans for nationwide production of uncommitted coal as follows:

Year:	*Production (million tons)*
1978	124.3
1979	243.1
1980	293.3
1981	350.0
1982	369.9
1983	396.2
1984	475.5
1985	544.9

b. *National demand exclusive of ESECA prohibition order demand.* The estimated national demand, excluding any increased demand resulting from FEA action under the authority of Section 2(a) of ESECA, is as follows (FEA 1976 National Energy Outlook):

Year:	*Demand (million tons)*
1978	730
1979	764
1980	799
1981	842
1982	887
1983	935
1984	985
1985	1,040

c. *National ESECA prohibition order demand.* The estimated potential demand for coal resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA is no more than the following ("Availability Report"):

Year:	*Demand (million tons)*
1978	11.0
1979	22.4
1980	32.5
1981	35.8
1982	57.4
1983	59.3
1984	59.3

3. *Characteristic coal production and demand.*—FEA's "Availability Report" identifies coal of specific quality characteristics available for use at these MFBI's. The survey is based on data from 31 mining companies that supplied useful information on 96 mining units. Responses from these companies identified planned production of coal which is not now committed to a specific buyer. For those companies which did not respond to the survey, FEA estimated their uncommitted planned production based on their 1974 production.

a. *Characteristic coal requirements for these MFBI's.* FEA's "Availability Report" has determined that boilers of the type used at Fredericksburg 58, 59, 60, 61 and 62 will be able to burn coal of the following characteristics and comply with all applicable air pollution control requirements.

Btu's/lb.	[1] 10,000
Moisture (percent)	[2] 15
Ash (percent)	[2] 20
Volatile (percent)	[1] 15
Ash softening temp. (°F)	[1] 2,200
Sulfur (approximately) (percent)	[2] 1.6

[1] Minimum.
[2] Maximum.

b. *Characteristic coal demand from these MFBI's.* The potential demand for coal, of the type described above, which would result from this NOI is estimated to be as follows:

Year:	*Demand (thousand tons)*
1980 and thereafter	236

c. *National planned production, characteristic coal.* FEA's "Availability Report" has determined that coal of the type described in paragraph A.3.a., above, is uncommitted to a specific buyer and will be potentially available to these MFBI's in a nationwide market as follows:

Year:	*Production (thousand tons)*
1978	67,937
1979	127,138
1980	158,932
1981	189,318
1982	200,259
1983	214,838
1984	253,700

d. *National ESECA prohibition order demand for coal regardless of characteristics.* The national planned production of characteristics coal, as stated in paragraph A.3.c., above, exceeds potential demand for coal regardless of characteristic expected from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all ourstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. National ESECA Prohibition Order demand as previously stated in paragraph A.2.c., above is no more than the following ("Availability Report"):

Year:	*Demand (thousand tons)*
1978	11,032
1979	22,434
1980	32,483
1981	35,755
1982	57,362
1983	59,315
1984	59,315

e. *Regional planned production, characteristic coal.* Coal with the characteristics described in paragraph A.3.a., above, is uncommitted and will be potentially available to these MFBI's (in a probable regional supply/demand relationship related to the location of these MFBI's) from BOM Districts 7, 8 and 13 as follows ("Availability Report"):

Year:	*Production (thousand tons)*
1978	26,032
1979	47,383
1980	53,082
1981	61,661
1982	65,354
1983	70,552
1984	80,964

f. *Regional ESECA prohibition order demand for coal, regardless of characteristic.* The expected regional production of characteristic coal, as stated in paragraph A.3.e., above, exceeds the potential demand for coal regardless of characteristic from BOM Districts 7, 8 and 13 expected to result from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. This potential regional demand is estimated in FEA's "Availability Report" to be no more than the following:

Year:	*Demand (thousand tons)*
1978	3,268
1979	9,149
1980	16,321
1981	18,005
1982	23,682
1983	24,095
1984	24,095

g. *Regional ESECA prohibition order demand for coal by sulfur characteristic.* The potential regional demand for coal from BOM Districts 7, 8 and 13 with a 1.41–1.8% sulfur content (which includes the 1.6% maximum sulfur content described in paragraph A.3.a., above) resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA is estimated in FEA's "Availability Report" to be no more than the following:

Year:	*Demand (thousand tons) percent sulfur 1.41 to 1.8*
1978	226
1979	897
1980	1,773
1981	1,773
1982	1,773
1983	1,773
1984	1,773

The regional planned production of coal stated in paragraph A.3.e., above, with the characteristics described in paragraph A.3.a., above, far exceeds this potential ESECA regional demand for coal by sulfur characteristic.

• 4. *State or local laws.*—FEA has found no state or local laws or policies limiting the extraction or utilization of coal that would adversely affect these production figures, and none have been brought to FEA's attention.

5. *Conclusion.*—FEA's "Availability Report" has identified nationally and in BOM Districts 7, 8 and 13 uncommitteed coal production that meets the requirements of Fredericksburg 58, 59, 60, 61 and 62 as described in paragraph A.3.a., above. FEA proposes to find that this uncommitted coal exists in amounts sufficient in any year to meet the estimated additional demand for coal, both nationally and from these Districts, resulting from this NOI, from all other Notices of Intention to from these Districts, resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2 (a) of ESECA.

Coal for these MFBI's will probably be bought from producers according to regional supply/demand relationships related to the MFBI's location from BOM Districts 7, 8 and 13. FEA observers, however, that the MFBI's could purchase coal in other markets as such production becomes available. (The Feasibility of Considering Expanded Use of Western Coal by Midwestern and Eastern Utilities in the Period 1978 and Beyond, School of Engineering, University of Pennsylvania, November 7, 1975.)

B. *Coal transportation.*—1. *Location of MFBI's and coal supply.* Based on an FEA study, Coal Transportation Availability Report, April 1977 (hereafter "Transportation Availability Report"), coal for the Fredericksburg 58, 59, 60, 61 and 62 would probably come from BOM District 8 as both the primary and alternate source of supply. While these supply regions are among the nearest available sources able to supply complying coal to Fredericksburg 58, 59, 60, 61 and 62, complying coal could be transferred by rail from other identified sources within the United States as well. The analysis of transportation availability is based on the most likely route as well as two alternate routes. These routes were chosen to demonstrate transportation availability.

2. *Route of coal shipment.*—The primary route for coal delivery for Fredericksburg 58, 59, 60, 61 and 62 is to originate coal in BOM District 8 on the Norfolk and Western (N&W) Railroad near Williamson, West Virginia. N&W would haul it to Lynchburg, Virginia and the Chesapeake and Ohio (Chessie System) would move the coal to Richmond, Virginia where the Richmond, Fredericksburg, and Potomac (RFP) would pick it up for delivery to Fredericksburg 58, 59, 60, 61 and 62. The total rail distance is about 460 miles.

An alternate route from the primary supply area originates coal in BOM District 8 near Appalachia, Virginia on the N&W which would load and move the coal via Roanoke to Meherrin, Virginia. The Southern Railway would then move it to Richmond, Virginia. The RFP would deliver the coal to Fredericksburg 58, 59, 60, 61 and 62. The total rail distance is about 460 miles.

An alternate route would originate coal in BOM District 8 Southeast of Charleston, West Virginia on the Chesapeake and Ohio (Chessie System) which would haul it via Covington and Charlottesville, deliver it to Fredericksburg 58, 59, 60, 61 and 62. The total rail distance is approximately 370 miles.

3. *Originating Trunk carrier.*—The N&W, the originating carrier of coal for Fredericksburg 58, 59, 60, 61 and 62, has approximately 54,000 hopper cars with an estimated average capacity of 83 tons. Using an average number of deliveries of 20 per year per 83-ton car, the N&W may need as many as 155 additional cars to handle the increased demand from Fredericksburg 58, 59, 60, 61 and 62. The N&W indicated that the retirements from their hopper fleet are not expected to exceed 1,200 per year and that N&W has shop capacity to build 1,500 to 5,000 new cars per year, depending on demand. This estimate assumes that the railroad would neither have excess originating capacity nor obtain cars from other carriers in the originating vicinity.

FEA's "Transportation Availability Report" concluded that for all potential Prohibition Order candidates studied, there would be no major constraints in transporting coal. This study examined existing rail transportation car capacity, water transportation capacity, including unloading docks, where car capacity, water transportation capacity, including unloading docks, where applicable, and took into account projections made by all carriers to meet the anticipated demand for all types of transportation facilities assuming all MFBI's studied were to receive orders under Section 2(a) of ESECA.

The N&W indicated that transportation facilities at mines within BOM District 8 served by the N&W are operating satisfactorily and that loading facilities could handle the required coal volumes.

4. *Destination carrier and MFBI's facilities.*—FEA has not found nor has it been informed of any apparent constraints to carrying coal for any alternate or intermediate carrier should they be used.

The RFP currently provides heavy freight service to Fredericksburg 58, 59, 60, 61 and 62. Although the plant used coal as a primary fuel until 1970, it reports that new coal unloading and handling equipment and facilities would need to be reinstalled. It is expected that these repairs can be accomplished prior to the effective date for coal burning.

There are no other obstacles to the delivery of coal to Fredericksburg 58, 59, 60, 61 and 62.

5. *Conclusion.*—Coal transportation facilities will be available for the period a Prohibition Order is expected to be in effect since no major constraints to coal delivery over the primary route to Fredericksburg 58, 59, 60, 61 and 62 presently exist, and alternate routes are available.

APPENDIX

PROPOSED FINDINGS AND RATIONALE FOR NOTICE OF INTENTION TO ISSUE A PROHIBITION ORDER

ESECA and the FEA regulations require FEA to make certain findings before issuing a Prohibition Order to a major fuel burning installation (MFBI). FEA's proposed findings are set out below with respect to the MFBI's named below. Supporting rationale and conclusions are also set forth.

Docket No.	Owner	Installation	Unit No.	Location
OCU-2840	Avtex Fibers Inc.	Front Royal Plant	1, 2, 3	Front Royal, Va.

These findings, which are now proposed by FEA, are based on the information that has been provided to and developed by FEA prior to the issuance of this Notice of Intention (NOI) to issue a Prohibition Order.

Avtex Fibers, Inc., shall be referred to as the "owner" and as "Avtex." Front Royal Units 1, 2 and 3 shall be referred to as the "MFBI's" and as "Front Royal 1, 2 and 3."

I. *Capability and necessary plant equipment to burn coal.*

FEA proposes to find that on June 22, 1974, Front Royal 1, 2 and 3 had the capability and necessary plant equipment to burn coal. This proposed finding is based on the facts and interpretations stated below:

A. Avtex, in a Major Fuel Burning Installation Coal Conversion Report, Section I Questions 6, and 12–14, (Form FEA C–602–S–0), filed on May 30, 1975, indicated that each MFBI had in place on June 22, 1974, a boiler that was capable of burning coal. The boilers had been designed and constructed or modified to burn coal as their primary energy source, notwithstanding the fact that on June 22, 1974, the MFBI's may not have been burning coal as their primary energy source.

B. Based on information Avtex filed with FEA dated September 28, 1976 and other information available to FEA, the following plant equipment and facilities at Front Royal 1, 2 and 3 would have to be acquired or refurbished in order for these MFBI's to burn coal as their primary energy source:

1. Pulverizers.
2. Coal handling equipment.

C. FEA proposes to find that on June 22, 1974, Front Royal 1, 2 and 3 had all other significant plant equipment and facilities associated with the burning of coal.

D. Within the meaning of ESECA and the regulations promulgated pursuant thereto, the equipment and facilities listed in paragraph B, above, do not individually or in combination constitute a lack of capability and necessary plant equipment to burn coal, as of June 22, 1974.

II. *The burning of coal in lieu of natural gas or petroleum products is practicable and consistent with the purposes of ESECA.*

FEA proposes to find that the burning of coal in lieu of petroleum products or natural gas at Front Royal 1, 2 and 3 is practicable and consistent with the purposes of ESECA. This proposed finding is based upon an analysis by FEA of the fuel consumption of these boilers for the period 1973–1977, the remaining useful service life of each boiler after conversion, the net operating cost differential that would result from compliance with a Prohibition Order, as well as the facts and interpretations referenced below:

A. *The burning of coal is practicable.*—1. *Costs associated with burning coal.*—a. *Capital investment costs.* The total estimated initial capital investment costs, including financing costs, that would result from the acquisition and refurbishment of equipment

and facilities associated with the burning of coal at Front Royal 1, 2 and 3 have been determined.

This determination was based on existing FEA information and analysis, as well as information filed with FEA by the owner. Approximate costs to comply with applicable environmental protection requirements have also been considered, including the cost of compliance with the air pollution control requirements of the Clean Air Act.

b. *Annual operating and maintenance costs.* The expected increase in operating and maintenance costs, exclusive of fuel costs, that would result from the burning of coal has been calculated based on information supplied by the owner or otherwise acquired by FEA.

c. *Fuel costs.* Based on an analysis of annual fuel consumption and fuel cost information supplied by the owner and/or, in appropriate circumstances, upon FEA's fuel cost estimates, FEA has determined that the burning of coal in lieu of natural gas or petroleum products at Front Royal 1, 2 and 3 will result in a decrease in annual fuel costs.

d. *Net operating cost differential.* Based on the factors stated in paragraph A.1.a.–c., above, as well as the expected remaining useful life of the boilers after conversion, FEA has determined that the net annual operating cost differential (which represents the difference between operating the boilers with coal and alternate fuel(s) as their primary energy source), resulting from the conversion of Front Royal 1, 2 and 3 will represent an annual savings.

2. *Reasonableness of costs of conversion.*—The foregoing analysis of the costs of conversion provided the basis for deciding whether the conversion of Front Royal 1, 2 and 3 is reasonable.

As a result of conversion, Avtex will incur additional capital investment costs, including financing costs, and additional annual operating and maintenance costs, exclusive of fuel costs, but will experience an annual savings in its total fuel costs for the expected remaining useful service life of the boilers after conversion.

Since all increased costs of conversion will be offset by the decrease in fuel costs, a net decrease in the annual cost of operation of the boilers should result.

The use of coal at Front Royal 1, 2 and 3 will result in a substantial annual savings of barrels of oil that otherwise would be used as a boiler fuel.

FEA proposes to find that, since the increase in capital investment costs and operating and maintenance costs at Front Royal 1, 2 and 3 are totally offset by the current fuel cost differential between oil and coal burning at Front Royal 1, 2 and 3 and potential future increases in the fuel cost differential in favor of coal, the additional costs associated with burning coal are reasonable.

3. *Financial capability of the owner.*—a. *Recovery of capital investment.* FEA proposes to find that compliance with a Prohibition Order by Front Royal 1, 2 and 3 would be economically feasible. FEA's analysis took into consideration the financial capability of the owner and is based upon the owner's financial position as reported in the Dun and Bradstreet Reference Book (March 1977). Where necessary, FEA performed an independent analysis of the owner's financial capability, considering such factors as the owner's current financial statement and the additional capital investment required for the owner to comply with this NOI and all other NOI's which are currently under consideration, as well as additional capital investment costs related to all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2 (a) and (c) of ESECA to MFBI's owned by Avtex. FEA related these additional capital investment costs to the total capitalization of Avtex and the remaining useful life after conversion of Front Royal 1, 2 and 3.

FEA does not consider the effect of the added capital investment costs to represent an unreasonable burden given the financial capabilities of Avtex to assume such costs.

b. *Total annual costs associated with conversion.* The total estimated annual increase in costs (amortized increased capital investment costs and other costs, exclusive of fuel costs) associated with the burning of coal as opposed to oil attributable to compliance with this NOI and all other NOI's which are currently under consideration has been determined. FEA also took into consideration total annual costs resulting from compliance with all other Notices of Intention, to date, if any, to issue Prohibition or Construction Orders, and from all outstanding Prohibition or Construction Orders, if any, issued to date under authority of Section 2(a) and (c) of ESECA to Avtex MFBI's.

However, due to the potential offsetting value of fuel cost savings attributable to compliance with this NOI and all other NOI's currently under consideration, Avtex's total annual costs after conversion should decrease.

B. *Consistency with the purposes of ESECA.*—Because the issuance of a Prohibition Order to Front Royal 1, 2 and 3 will discourage the use of natural gas or petroleum products and encourage the increased used of coal, FEA proposes to conclude that this action would be consistent with the purpose of ESECA to provide a means to assist in meeting the essential needs of the United States for fuels.

On the basis of the environmental analysis which FEA is required to conduct prior to issuance of a Notice of Effectiveness of a Prohibition Order, as well as the necessity for these MFBI's to comply with the Clean Air Act and other applicable environmental protection requirements, FEA proposes to conclude that a Prohibition Order to Front Royal 1, 2 and 3 would be consistent with the purpose of ESECA to provide a means to assist in meeting the essential needs of the United States for fuels in a manner which is consistent, to the fullest extent practicable, with existing national commitments to protect and improve the environment.

Coal and coal transportation facilities will be available to these MFBI's during the period until December 31, 1984. A. *Coal availability.*—1. *National coal reserves.* United States coal reserves are more than sufficient to supply national needs for the foreseeable future. U.S. Department of the Interior, Bureau of Mines (BOM) data show a demonstrated coal reserve base of over 400 billion tons, over half of which is currently technically and economically recoverable (Demonstrated Coal Reserve Base of the United States, by Sulfur Category, on January 1, 1974, Bureau of Mines (May 1975) (hereafter "BOM Survey")). Within these recoverable reserves approximately 200 billion tons contain 1% or less sulfur by weight. To determine when certain quantities of these reserves are expected to be available, FEA has examined several studies referenced herein, which together provide the best current evidence as to coal availability for the period ending December 31, 1984.

2. *National coal production and demand.*—The comparison, stated below, of estimated national coal production, national coal demand, and the total tonnage of uncommitted planned national coal production (derived from responses to a survey of coal producing companies) shows that there should be sufficient production of coal to meet the total national demand through 1980. Beyond 1980, plans for new production are not yet fully developed because few coal producers have firm expansion plans that extend that far into the future; however, the projected total planned national coal production for 1985 already meets 99% of the total U.S. demand expected in 1985. With time, more potential mine developments will become firm plans, thus increasing the planned production.

a. *National coal production.* It is conservatively estimated that it will be practicable to produce coal nationally in at least the following quantities:

Year:	*Production potential (million tons)*
1977	732.3
1978	791.6
1979	851.4
1980	911.7
1981	960.0
1982	994.3
1983	1,017.4
1984	1,038.7
1985	1,029.6

The figures shown above are derived from FEA's Coal Mine Expansion Study (May 1976). This study demonstrates that most coal producers did not have firm or accurate plans for new capacity additions beyond 1980. The 1985 projection, therefore, tends to underestimate actual production potential.

An FEA study, Coal Availability Report, April 1977, (hereafter "Availability Report"), indicates current plans for nationwide production of uncommitted coal as follows:

Year:	*Production (million tons)*
1978	124.3
1979	243.1
1980	293.3
1981	350.0
1982	369.9
1983	396.2
1984	475.5
1985	544.9

b. *National demand exclusive of ESECA prohibition order demand.* The estimated national demand, excluding any increased demand resulting from FEA action under the authority of Section 2(a) of ESECA, is as follows (FEA 1976 National Energy Outlook):

Year:	*Demand (million tons)*
1978	730
1979	764
1980	799
1981	842
1982	887
1983	935
1984	985
1985	1,040

c. *National ESECA prohibition order demand.* The estimated potential demand for coal resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA is no more than the following ("Availability Report"):

Year:	*Demand (million tons)*
1978	11.0
1979	22.4
1980	32.5
1981	35.8
1982	57.4
1983	59.8
1984	59.8

3. *Characteristic coal production and demand.*—FEA's "Availability Report" identifies coal of specific quality characteristics

available for use at these MFBI's. The survey is based on data from 31 mining companies that supplied useful information on 96 mining units. Responses from these companies identified planned production of coal which is not now committed to a specific buyer. For those companies which did not respond to the survey, FEA estimated their uncommitted planned production based on their 1974 production.

a. *Characteristic coal requirements for these MFBI's.* FEA's "Availability Report" has determined that boilers of the type used at Front Royal 1, 2 and 3 will be able to burn coal of the following characteristics and comply with all applicable air pollution control requirements.

Btu's/lb	[1] 10,000
Moisture (percent)	[2] 15
Ash (percent)	[2] 20
Volatile (percent)	[1] 15
Ash softening temp. (° F)	[1] 2,200
Sulfur (approximately) (percent)	[2] 1.7

[1] Minimum.
[2] Maximum.

b. *Characteristic coal demand from these MFBI's.* The potential demand for coal, of the type described above, which would result from this NOI is estimated to be as follows:

Year:	Demand (thousand tons)
Year: 1980 (and after)	250

c. *National planned production, characteristic coal.* FEA's "Availability Report" has determined that coal of the type described in paragraph A.3.a., above, is uncommitted to a specific buyer and will be potentially available to these MFBI's in a nationwide market as follows:

Year:	Production (thousand tons)
1978	67,937
1979	127,138
1980	158,932
1981	189,318
1982	200,259
1983	214,838
1984	253,700

d. *National ESECA prohibition order demand for coal, regardless of characteristics.* The national planned production of characteristic coal, as stated in paragraph A.3.c., above, exceeds potential demand for coal regardless of characteristic expected from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. National ESECA Prohibition Order demand as previously stated in paragraph A.2.c., above, is no more than the following ("Availability Report"):

Year:	Demand (thousand tons)
1978	11,032
1979	22,434
1980	32,483
1981	35,755
1982	57,362
1983	59,815
1984	59,815

e. *Regional planned production, characteristic coal.* Coal with the characteristics described in paragraph A.3.a., above, is uncommitted and will be potentially available to these MFBI's (in a probable regional supply/demand relationship related to the location of these MFBI's) from BOM Districts 7, 8 and 13 as follows ("Availability Report"):

Year:	Production (thousand tons)
1978	26,032
1979	47,383
1980	53,082
1981	61,661
1982	65,354
1983	70,552
1984	80,964

f. *Regional ESECA prohibition order demand for coal, regardless of characteristic.* The expected regional production of characteristic coal, as stated in paragraph A.3.e., above, exceeds the potential demand for coal regardless of characteristic from BOM Districts 7, 8 and 13 expected to result from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA. This potential regional demand is estimated in FEA's "Availability Report" to be no more than the following:

Year:	Demand (thousand tons)
1978	3,268
1979	9,149
1980	16,321
1981	18,005
1982	23,682
1983	24,095
1984	24,095

g. *Regional ESECA prohibition order demand for coal by sulfur characteristic.* The potential regional demand for coal from BOM Districts 7, 8 and 13 with a 1.41–1.8% sulfur content (which includes the 1.7% maximum sulfur content described in paragraph A.3.a., above) resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Secton 2(a) of ESECA is estimated in FEA's "Availability Report" to be no more than the following:

Year:	Demand (thousand tons) Percent sulfur 1.41 to 1.8
1978	226
1979	837
1980	1,773
1981	1,773
1982	1,773
1983	1,773
1984	1,773

The regional planned production of coal stated in paragraph A.3.e., above, with the characteristics described in paragraph A.3.a., above, far exceeds this potential ESECA regional demand for coal by sulfur characteristic.

4. *State or local laws.*—FEA has found no state or local laws or policies limiting the extraction or utilization of coal that would adversely affect these production figures, and none have been brought to FEA's attention.

5. *Conclusion.*—FEA's "Availability Report" has identified nationally and in BOM Districts 7, 8, and 13 uncommitted coal production that meets the requirements of Front Royal 1, 2, and 3 as described in paragraph A.3.a., above. FEA proposes to find that this uncommitted coal exists in amounts sufficient in any year to meet the estimated additional demand for coal, both nationally and from these Districts, resulting from this NOI, from all other Notices of Intention to issue Prohibition Orders to date and from all outstanding Prohibition Orders issued to date under authority of Section 2(a) of ESECA.

Coal for these MFBI's will probably be bought from producers according to regional supply/demand relationships related to the MFBI's location from BOM Districts 7, 8 and 13. FEA observes, however, that the MFBI's could purchase coal in other markets as such production becomes available. (The Feasibility of Considering Expanded Use of Western Coal by Midwestern and Eastern Utilities in the Period 1978 and Beyond, School of Engineering, University of Pennsylvania, November 7, 1975.)

B. *Coal transportation.*—1. *Location of MFBI's and Coal Supply.* Based on an FEA study, Coal Transportation Availability Report, April 1977, (hereafter "Transportation Availability Report"), coal for Front Royal 1, 2 and 3 would probably come from BOM District 8 as both the primary and alternate source of supply. While these supply regions are among the nearest available sources able to supply complying coal to the plant, complying coal could be transferred by rail from other identified sources within the United States as well. The analysis of transportation availability is based on the most likely route as well as two alternate routes. These routes were chosen to demonstrate transportation availability.

2. *Route of coal shipment.*—The primary route for coal delivery for Front Royal 1, 2 and 3 is to originate coal near Williamson, West Virginia in BOM District 8 on the Norfolk and Western Railroad Company (N&W) which would deliver it via Bluefield, West Virginia to Front Royal 1, 2 and 3. The total rail distance is about 390 miles.

The alternate route from the primary supply source would originate coal near Williamson, West Virginia on the N&W which would move it to Beckley, West Virginia. The Chesapeake and Ohio would move the coal via Covington, Virginia to Strasburg, Virginia where the Southern Railway would pick it up for delivery to Front Royal 1, 2 and 3. The total rail distance is about 365 miles.

The alternate route from the alternate supply area would originate coal on the Chesapeake and Ohio (Chessie System) in BOM District 8 near Charleston, West Virginia. The Chessie System would move it to Waynesboro, Virginia where the N&W would pick it up and deliver it to Front Royal 1, 2 and 3. The total rail distance is about 325 miles.

3. *Originating trunk carrier.*—The N&W, the originating carrier of coal for Front Royal 1, 2 and 3 has approximately 54,000 hopper cars with an estimated average capacity of 83 tons. Using an average delivery of 20 per year per 83-ton car, the N&W may need as many as 111 additional cars to handle the increased demand from the Front Royal 1, 2 and 3. N&W reports that their own car shop which repairs and builds cars has a capacity of 1,500 new cars per year depending on market demand. They do not anticipate any difficulty in meeting the requirements of Front Royal 1, 2 and 3.

FEA's "Transportation Availability Report" concluded that for all potential Prohibition Order candidates studied, there would be no major constraints in transporting coal. This study examined existing rail transportation car capacity, water transportation capacity, including unloading docks, where applicable, and took into account projections made by all carriers to meet the anticipated demand for all types of transportation facilities assuming all MFBI's studied were to receive orders under Section 2(a) of ESECA.

The N&W indicates that transportation facilities at mine sites within BOM District

8 served by the N&W are operating satisfactorily and that loading facilities can handle the required coal volumes.

FEA has not found nor has it been informed of any apparent constraints to carrying coal for any originating alternate or intermediate carriers should they be used.

4. *Destination carrier and MFBI facilities.*—Front Royal, Virginia is served by a short branch line from tracks of both the Norfolk and Western and Southern Railway. Coal was delivered to the plant until a few years ago. Some maintenance will probably be required to refurbish the unloading and handling facilities. It is expected that these repairs can be accomplished prior to the effective date for coal burning.

There are no other obstacles to the delivery of coal to Front Royal 1, 2 and 3.

5. *Conclusion.*—Coal transportation facilities will be available for the period a Prohibition Order is expected to be in effect since no major contraints to coal delivery over the primary route to Front Royal 1, 2 and 3 presently exist, and alternate routes are available.

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